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EDUCATION FOR THE HOME

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PART III COLLEGES AND UNIVERSITIES



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PREFATORY NOTE.

Over 250 colleges now offer courses of instruction that have direct reference to the home; and related applied-science courses in economics, sociology, biology, bacteriology, and chemistry are given in over 40 other institutions.

In this portion of the report there are presented statements showing how instruction in home economics is organized in various colleges and universities, such as the University of Chicago, with its department of household administration as a division of the university, and in addition in its school of education a department of home economics and household arts; the University of Missouri, with its department of home economics a part of its school of education, but offering work also for the degrees of A. B. and B. S. in agriculture; Elmira College, one of the early women's colleges, which now offers a vocational degree in the household field and accepts certain courses for the A. B. degree; the University of Wisconsin, in which the department is administratively related to the college of agriculture; Simmons College, Boston, an academic-vocational college with household economics as one of its six vocational departments; Teachers College, Columbia University, which not only trains teachers of household arts, but in its technical "school of practical arts" trains household and institution managers, dietitians, and similar professional workers related to the household. The college course in home economics recommended by a committee of the agricultural colleges is also presented.

Outlines of typical individual courses, as given in different colleges and universities, are next presented under the following groupings: The home-economics movement; economic and social-science courses related to the household; natural science courses related to the household; courses in foods; courses in clothing, shelter, household management, and related courses. There are further presented (p. 62) data regarding college instruction in household arts received through a schedule of inquiry. The facts are assembled first by individual colleges (table 1, p. 63); they are then discussed as to the conclusions, with explanatory illustrations, under such headings as the dates of introducing college instruction, degrees, courses, registration, summer courses, extension education, equipment, and other subjects.

EDUCATION FOR THE HOME—PART III.

I. TYPICAL COLLEGE CURRICULA IN EDUCATION FOR THE HOME.

Section 1. UNIVERSITY OF CHICAGO.

The University of Chicago offers work related to the home at two points in the university: The department of household administration, in the faculties of arts, literature, and science; and the department of home economics and household arts in the school of education.

The department of household administration of the University of Chicago is significant as a university department of instruction which offers undergraduate and graduate instruction under the faculties of arts, literature, and science. Its courses particularly emphasize the administration of the home, and its sanitary, economic, legal, and community problems. Household administration is here given fullest academic recognition and placed coordinately with the long-established academic and scientific departments. The courses have been from the first in charge of Miss Marion Talbot, professor of household administration, and dean of women, with whom there is associated Miss Sophonisba P. Breckinridge, assistant professor of social economy. The very statement of the purpose of the courses presents a liberal view appropriate to university relationships:

The courses in this department are planned to give students (1) a general view of the place of the household in society as a means of liberal culture; (2) training in the rational and scientific administration of the home as a social unit; (3) preparation to serve as teachers of home economics, domestic science, and household arts, or as social workers in institutions whose activity is largely expressed through household administration. The regular courses of the department are supplemented by courses offered by instructors in other departments, especially in the departments of sociology, chemistry, zoology, physiology and bacteriology, and of the school of education.

The department grants no special certificate; its work is applied, like that of other departments, toward the requirements for the various university degrees—bachelors of arts, science, and philosophy; the master of arts and of science and the doctor of philosophy and of science. Undergraduate students may take their "major or minor sequence" in this department or choose electives; college of

education students who are candidates for the bachelor's degree in education or the two-year certificate in home economics may elect work in the department of household administration; unclassified students who are 21 years of age and high-school graduates with training in either physics or chemistry may pursue courses independent of a degree; and instruction in certain courses is offered through the correspondence-study department of the university. The department affords "opportunities for gaining practical experience in housekeeping, lunchroom management, marketing, household accounting, and similar activities. There are also frequent occasions for active participation in such philanthropic work as supplements the instruction of the classroom."

The following courses of instruction are offered by the department of household administration:

The Organization of the Retail Markets.—An elementary course intended to familiarize the student with the machinery of trade with which the householder comes into direct contact. Visits will be made to typical distributive establishments.

The Consumption of Wealth.—Standards of living; necessities for life and for efficiency, comforts, luxury, and extravagance; a minimum wage and a living wage; saving and spending; organized efforts among consumers to control production.

The Economic Basis of the Family.

Public Aspects of the Household.—A course intended to review the relations between the householder and the public, as represented by Federal, State, or municipal authority.

Legal and Economic Position of Women.—A study of the status of women with reference to their property, the effect of marriage, their share in the control of their children, their opportunities as wage earners and producers. (See p. 22.)

The Child and the State.

Problems in Household Administration.—This course will be conducted for students who have had special training and experience, preferably in teaching, social work, or scientific housekeeping.

House Sanitation.—This course deals with the house as a factor in health. Special attention will be given to modern conceptions of cleanliness and to the investigation of general sanitary conditions from a practical and scientific standpoint and with special reference to the needs of the community, the household, and the school.

Food Supplies and Dietaries.—The nutritive and money values of foodstuffs; the application of heat to food principles; adulterations; methods of preservation; sanitary and economic aspects of food; popular misconceptions as to foods.

Administration of the House.—This course will consider the order and administration of the house with a view to the proper apportionment of the income and the maintenance of suitable standards. It will include a discussion of the domestic-service problem.

Modern Problems in Household Administration.—The work will be conducted only for students capable of carrying on independent investigations. It will deal with new and unsettled problems whose solution will help place the subject of household administration on a more secure scientific basis.

Special Research.—Open only to students who have had special training and experience.

Department of home economics and household arts.—The school of education, University of Chicago, offers courses in this department

which are planned for those students who are preparing to become teachers or supervisors in elementary and secondary schools in home economics and household art, and for teachers of these subjects in normal schools and colleges; also, courses in institution economics. Students registering in this department must take physiology, chemistry, and economics in addition to the general requirements. This department offers two curricula, one leading to the bachelor's degree in education, and the other to a departmental certificate conferred on the completion of 18 major courses of required work. The courses offered include:

In Home Economics.—Food and its preparation (2 courses), application of heat to food materials (4 courses), study of foods (2 courses), dietary problems, dietetics and dietary standards, chemistry of foods (2 courses), home sanitation, institution economics (3 courses), theory of teaching home economics, and practice teaching.

In Household Art.—Economics of household art, house planning and construction, handwork of household art, textiles, sewing (3 courses), dressmaking, millinery, drafting, constructive design in costume, theory of teaching household art, practice teaching.

Institution economics.—Miss Cora C. Colburn, of the school of education of the University of Chicago, furnishes the following statement of the courses in institution economics:

The instruction is given in the senior college, and all students who wish to specialize in this particular field are expected to meet the full requirements of the department of home economics. The several dining halls of the university are used as working laboratories by the students in this department, and every possible opportunity is given for experience in this line of work.

An outline of the courses follows:

Course 1. A study of the organization and equipment of school lunch rooms, public and private institutions; the installation of equipment, with reference to the economy of time and energy; lecture and field work.

Course 2. Production, manufacture, and distribution of foods; their commercial and nutritive value; storage and care of supplies; lecture and laboratory; to accompany or precede course 1.

Course 3. The preparation and selection of food; a study of institution dietaries with special reference to the school lunch; quantity in relation to number to be served; methods of serving.

Section 2. UNIVERSITY OF MISSOURI.

The various departmental relations of a home economics department are well illustrated by the courses at the University of Missouri, where the department of home economics is a part of the school of education, but with other important affiliations:

For A. B. degree: Students may include in their elective requirements for the bachelor of arts degree, not to exceed 15 hours, from the following household science courses—Introduction to home economics, 5 hours; house sanitation, 3; house decoration, 2; foods, general course, 4; metabolism and dietetics, 3.

For the degree of bachelor of science in education, with home economics as a special subject, there are required (after two preliminary years in the college of arts and science where work is had in experimental psychology and educational psychology) courses in the history of education, theory of teaching, practice teaching, and school economy, with a minimum requirement of 17 hours in home economics, including a course in the teaching of home economics.

For the degree of bachelor of science in agriculture: A four-year curriculum in agriculture for women is offered, with 58 hours required as below, 38 additional hours required in either the plant group, dairy husbandry group, or the home economics group of courses, and the balance of 26 in the total of 120 hours as free electives. The required subjects are as follows: Freshmen year—chemistry, inorganic (5) and analytical (5); English (5); horticulture-plant propagation (2), introduction to home economics (5), general botany (5). Sophomore year—elementary organic chemistry (3), grain judging (3), landscape gardening (4), English (4), general bacteriology (3), elements of dairying (3). Junior year—house sanitation (3), general zoology (5).

For these three curricula the home economics department offers the following courses: Introduction to home economics (5 hours), dietetics for nurses (2), textiles and clothing (2), sewing (2), advanced sewing (2), millinery (2), house sanitation (3), house decoration (2), foods—general course (4), metabolism and dietetics (3), dressmaking (3), principles of nursing in the home (1), and research.

Section 3. ELMIRA COLLEGE.

Elmira College, established at Elmira, N. Y., in 1855, offers a program in domestic arts and science leading to the bachelor of science degree (vocational). Another "vocational" course is offered in secretarial work and social science. These "vocational" courses are in addition to the classical course leading to the A. B. degree, and a music course leading to the B. S. degree. Graduates of colleges may take a one-year course in secretarial or social work. The domestic arts course is intended to prepare teachers and fit for household management. Fifteen units of high-school work are required for admission, including two units in natural science, chemistry, and physics. The following courses are offered: Household economics, six courses in foods and cookery, including a course in the theory of teaching domestic science, two courses in hygiene (one in laundering), five courses in clothing, including one in the theory of teaching domestic art. Of these courses those in nutrition, food chemistry, and theory of teaching may be taken with credit by candidates for the nonvocational degrees. The college offers also 12 courses in business as part of its vocational curricula, which include standards of living and administration of the income, commercial and household accounts, and other commercial and philanthropic studies. As Elmira College was among the earliest of the women's colleges, so it is the first of the eastern women's colleges to provide vocational curricula both for undergraduates and graduates.

Section 4. UNIVERSITY OF WISCONSIN.

The department of home economics of the college of agriculture, University of Wisconsin, Madison, offers a four-year general course leading to the degree of bachelor of science. A minimum of 36 to 40 credits in home economics is required for the degree in this field. The curriculum is announced as dealing "with the principles which underlie the proper management of the home, care of children, hygienic and sanitary conduct of institutions, and the economic conditions affecting the work of women," and is intended for four types of students—those desiring a general knowledge of the subject as part of a liberal education, those interested in the management of the home, those wishing to teach in secondary schools and higher institutions, and graduate students.

The subjects required for the various years of the curriculum, and the credits allowed for each are as follows:

First year.—English, 6; German or French, 8; chemistry, general and qualitative analysis, 10; home economics, art and design, including principles of design, color and its application in the home, 3; home economics, selection and preparation of food (prerequisite, entrance, physics, or chemistry), 3.

Second year.—Physics, general, 10; household chemistry, composition and physical properties of food, nutritive values, chemistry, and home, 5; physiology, human anatomy and physiology, 3; bacteriology, as concerned with water, milk, and other food supplies and materials to be found in the household, 5; home economics—textiles, historical, economic, chemical, and hygienic aspects, microscopic tests, laundry problems, 4; electives, 2, 3.

Third year.—Home economics—manufacture and selection of clothing (prerequisite art and design, and textiles), history of costume, costume designing, comparison of home and factory-made clothing, hygienic factors, economic and social aspects of clothing industry, 6; home economics—house architecture and sanitation (prerequisites, chemistry, physics, bacteriology, art and design), 5; home economics—economic problems of the food supply, costs of production, and sale, processes of manufacture, food laws and inspection, testing of apparatus, 3; home economics—household decoration, floor coverings, hangings, pictures, economic problems in furnishing (prerequisites, art and design, textiles, and house architecture and sanitation), 4; home economics—dietetica (prerequisites, selection and preparation of food, food supply, physiology, bacteriology, chemistry, household chemistry), dietary standards, balanced rations, diet as influenced by age, sex, and occupation, construction of dietaries, and service of meals, dietetic treatment in disease and principles of home nursing, 5; electives, 8.

Fourth year.—Home economics—household management (prerequisite chemistry, bacteriology, physics, art and design, selection and preparation of food, food supply, textiles, dietetics, house architecture, sanitation, and decoration), 3; home economics—humane, development from before infancy to adolescence, problems of hygiene, mental development and habit formation, 4; home economics seminar, problems connected with the home, institutional management and the home economics movement in education, 1; home economics—teachers' course, existing courses in home economics, planning courses and equipment, observation and practice work in presentation, 2; thesis, 2 points; electives, 16.

In addition to these courses, which are required for the degree, the home economics department offers an introductory "general survey" course, the first half devoted to food problems, the second half to the house plan, first aids, cost of living, etc., also a senior and graduate course in institutional management, and a seminar on housing problems. The following electives given in other departments of the university are especially recommended:

English literature, biology, qualitative, organic, and agricultural chemistry, economics, economic statistics, social psychology, poverty and relief, educational psychology, experimental psychology, history, floriculture, economic entomology, and zoology.

Section 5. SIMMONS COLLEGE, BOSTON—AN ACADEMIC-VOCATIONAL COLLEGE.

Simmons College, Boston, opened 1902, "to furnish to women instruction and training in such branches of art, science, and industry as may be serviceable in enabling them to acquire a livelihood," offers a combined technical and academic curriculum with special programs in six distinct vocational fields—household economics, secretarial studies, library science, general science, social work, and industrial teaching. This college, therefore, combines technical and academic study for women somewhat as our best schools of technology do in training for engineering professions. Standard four-year programs are offered for high-school graduates and one-year and two-year programs for those who have had collegiate training elsewhere. In household economics the courses prepare for teaching household arts, for directing such instruction, for administering the institutional and private household, and for undertaking research in dietetics or other problems of household economics. The programs include science, applied science, and practice in household arts with elective studies.

The four-year program in household economics leads to the degree of bachelor of science. The first year, common to all courses, requires inorganic chemistry, English, history, household management, physics, and physical training. After the first year three specialized programs are offered:

Group I. This program emphasizes the scientific study of foods and their preparation, with full courses in chemistry and biology through four years in preparation for teaching, administration, or research in fields requiring knowledge of food, sanitation, and the practical household arts. It requires: Second year—Biology, physiology, or anatomy and histology, organic chemistry, cookery, English, housebuilding, and sewing. Third year—Bacteriology, quantitative analysis, chemistry of foods, cookery, economics, English, hygiene, marketing, and sanitary science. Fourth year—Psychology, ethics, and sociology, dietetics, foods, household economics, with electives in the last two years.

Group II. This prepares general teachers of cooking and sewing, with a minimum requirement in science, and including sewing and design, for those who do

not desire to specialize either in "domestic science" or "domestic art." It requires in the first year the uniform program; in the second year a program like that of Group I, except that a special chemistry course is provided, which completes the chemistry study required of this group; in the third year the program is like that of Group I, except that chemistry is omitted and sewing and design required; in the fourth year the few subjects required in Group I are also required here, but elective courses may emphasize sewing and design.

Group III. This prepares for teaching textiles, sewing, and design—that is, "domestic art." In the first year the uniform program is required; in the second and third years the program substitutes for the advanced chemistry and cookery of Group I work in sewing and design; in the fourth year the program includes psychology, ethics, and sociology, household economics, education, dress-making, textiles, costume design, elementary school sewing or industrial sewing, and organization of sewing courses.

The department of household economics offers two two-year programs for college graduates leading to the B. S. degree, one for those who have not studied chemistry, the other for those who have. Such students may also enter for a single year's technical study without reference to the degree.

Two special one-year programs are also offered, as follows:

1. In household management, offering preparation for the intelligent administration of the private household, requiring the following courses (substitutions allowed to meet individual needs): Bacteriology, chemistry, cookery, household management, marketing, physiology, child life, sanitary science, sewing, and physical training.

2. In institutional management, which is open to persons of maturity or experience, with the equivalent of a full high-school course, in preparation for care of college dormitories, tea rooms, or public institutions. Students must live in the college dormitories, and opportunity is provided for observation and practice in the lunchrooms at the Women's Educational and Industrial Union. The required courses are: Administration, bacteriology, chemistry, cookery, dietetics, household management, household sanitation, institutional management, with practice in the college dining hall, laundering, marketing, physiology, and sanitary science.

The department of household economics also offers one-year and two-year programs in household arts for teachers of experience, and a one-term program for students in training schools for nurses; also partial programs for students wishing to enter single technical courses, and extension courses for teachers of sewing.

Section 6. TEACHERS COLLEGE, COLUMBIA UNIVERSITY.

Teachers College comprises two schools, the school of education (a graduate school since July 1, 1914) and an undergraduate school of practical arts. As regards household arts there are two end points in the instruction offered—the training of teachers and the preparation of technical experts in household management, dietetics, and other vocational fields.

I. TRAINING OF TEACHERS IN THE HOUSEHOLD ARTS.

General aim.—The general aim is to prepare teachers of the household arts for both the elementary and secondary schools. The tendency is, however, to concentrate on the development of courses of training for normal-school teachers, supervisors of city systems, instructors in the college and university, and supervisors or heads of departments in college and university.

Admission requirements and length of course.—(A) For the master's degree in household arts education the general admission requirement is graduation from an accepted college with either the degree of A. B. or B. S. The special requirement for this department is strong foundation work in chemistry, which will enable the student to enter the advanced courses, and a knowledge of the undergraduate courses in the other technical subjects. A student who does not fulfill all these requirements may be entered as an unclassified student, taking necessary undergraduate technical work. The length of the time, whether one year or two, depends, of course, upon the previous training of the student.

(B) For the B. S. degree graduation from a standard high school is accepted for admission, and previous work in science and the household arts is desirable. The full course is four years, leading to the B. S. in education. Advanced students are admitted to the department of household arts education in the junior or senior year (the length of time depending upon the previous training of the student), the freshman and sophomore years of the course having been taken elsewhere.

(C) A certificate is awarded to teachers of experience who have had normal-school training when they have proved their ability to do high-grade work in the household arts education subjects.

Subjects.—(A) *Courses in education.* The foundation courses are educational psychology and history of education, and the course in principles of teaching in which the problems in household arts and industrial education are stressed. These courses are followed and paralleled by courses in special methods in household arts education, which deal with the problems of the elementary and secondary field. The most elementary course deals with the problems and methods in the elementary and high school. A second course deals with these two fields from the point of view of supervision, the students assigned to this class being those who are already experienced in teaching household arts. In the practicum for graduate students, large topics for special investigation are assigned to individual students. A course in methods of teaching in the college is given by several members of the household arts staff, the question of the content of each course and methods of presentation being treated in detail.

(B) *Technical subjects.* These include foundation courses in elementary chemistry, physics, and biology, followed by specialized courses in physiological chemistry and nutrition for students specializing in foods and sanitation. For the students in textiles there are corresponding courses dealing with the chemistry and manufacture of textiles, and with these may be grouped foundation courses in design. The technical courses of a practical nature include cooking and serving, marketing, housewifery, laundering, sewing, dressmaking, millinery, house structure, house and city sanitation, home nursing, care of children, and household management.

(C) *Courses in sociology and economics.* While these are so far used as electives, they are, in a sense, required electives. The trend of events points to the inclusion of courses of this nature among the required subjects. The courses offered include elements of economics, household economics (undergraduate and graduate), history of the family as a social institution, the basis of social legislation, and social evolution.

(D) The grouping of subjects.—There are various groupings of the listed subjects in order that the various needs of the field may be met, and that the students, while having certain foundation subjects, may have a wide range of choice. The undergraduate groups are given below, and to each group are to be added the fundamental courses in educational history, psychology, and educational methods as stated above under (A):

Group I. Clothing, textiles, household furnishings, and management in the elementary school: Teaching of household arts, 5 points; textiles 4; elementary clothing, 4; drafting and pattern making, 3; dressmaking, 4; millinery, 3; household art design, 3; elementary costume design, 3; principles of home decoration, 3; and any two of the following—housewifery, 2; domestic laundering, 2; household economics, 2; costume design, 3; dressmaking (intermediate), 4; teaching industrial arts, 4.

Group II. Clothing, textiles, household furnishings, and management in the secondary school: Teaching of household arts, 5 points; textiles, 4; elementary clothing, 4; drafting and pattern making, 3; dressmaking, 4; dressmaking (intermediate), 4; millinery, 3; history of costume, 2; household art design, 3; elementary costume design, 3; advanced costume design, 3; and any two of the following—domestic laundering, 2; household economics, 2; household management, 2; principles of home decoration, 3; millinery (advanced), 4; dressmaking (advanced), 3.

Group III. Foods, nutrition, and sanitation in elementary schools: Teaching of household arts, 5; food and nutrition, 4; food production, 3; household chemistry, 4; technology of cookery, 4; elementary food preparation, 3; home cookery and table service, 4; housewifery, 2; and any three of the following—domestic laundering, 2; household economics, 2; household management, 2; home nursing, 2; physical science in the household, 2; principles of home decoration, 3.

Group IV. Foods, nutrition, and sanitation in the secondary school: Teaching of household arts, 5 points; food production, 3; household chemistry, 4; physiological chemistry, 4; dietetics, 4; technology of cookery, 4; elementary food

preparation, 3; home cookery and table service, 4; elementary microbiology, 2; and any two of the following—housewifery, 2; domestic laundering, 2; household economics, 2; household management, 2; home nursing, 2; physical science in the household, 2; principles of home decoration, 3.

Group V. Clothing, textiles, foods, nutrition, and household management in the elementary school: Teaching of household arts, 5 points; textiles, 4; elementary clothing and handwork, 4; drafting, draping, and pattern making, 3; dressmaking (elementary), 4; household art design, 3; principles of home decoration, 3; costume design, 3; housewifery, 2; food and nutrition, 4; food production, 3; household chemistry, 4; technology of cookery, 4; elementary food preparation, 3; home cookery and table service, 4.

Students who can obtain exemption from these subjects are free to select other education courses and to pass on to advanced work in their special field. A student who has advanced standing, but who is not a college graduate and therefore can not work for her master's degree, is nevertheless enabled to do strong work of graduate standard.

II. ADMINISTRATION COURSES AT TEACHERS COLLEGE.

The school of practical arts, Teachers College, Columbia University, offers a four-year combined academic and technical course with an opportunity to specialize in preparation for various vocations, including in household administration the management of the private home, the administration of the institution, the administration of the hospital, and dietary administration. Other vocational courses in household arts are given in foods and cookery, textiles and clothing, house decoration, and costume design. The requirement in each of the practical-arts fields is a four-year course with approximately one-third of the time devoted to required academic subjects, one-third to required technical subjects, and the balance devoted to electives. The academic requirements are: Two years of English, and a year each of a modern language and history, with additional academic requirements or electives to make up one-third of the curriculum. The additional technical requirements are specialized for the various administrative fields, as follows:

In household administration: Housewifery, domestic laundering, the history of the family, house structure, household economics, household management, marketing, food economics, physics, technology of cookery, elementary clothing, textiles, home nursing, care of infants and small children, municipal sanitation, household chemistry, art appreciation, home furnishings.

Institution administration: Housewifery, domestic laundering, history of the family, house structure, institution administration, accounting and office management, social legislation, food production, household chemistry, technology of cookery, home cookery, institution cookery, food economics, municipal sanitation.

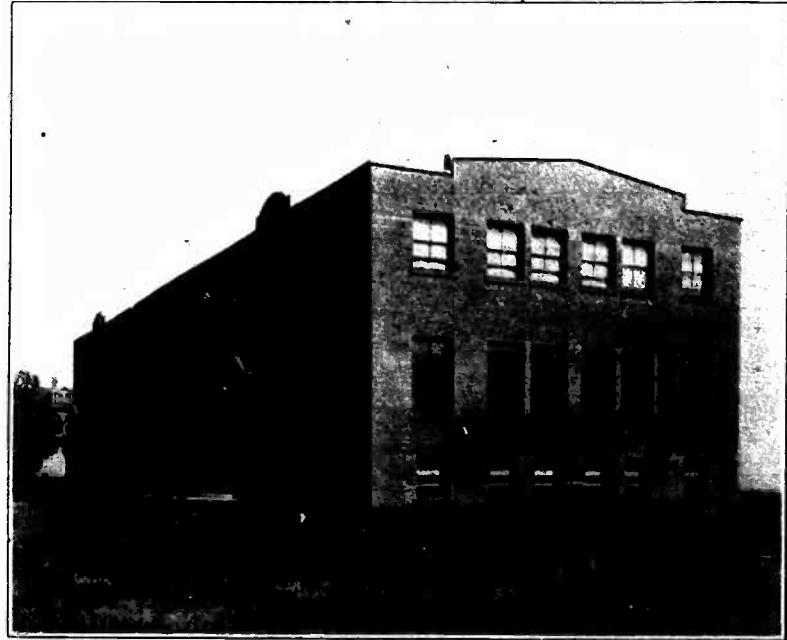
Dietary administration: Housewifery, house structure, dietary administration, institution administration, accounting and office management, technology of cookery, home cookery, institution cookery, catering, food production, household

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1. WOMAN'S BUILDING, DEPARTMENT OF HOUSEHOLD SCIENCE, UNIVERSITY OF ILLINOIS, URBANA, ILL.



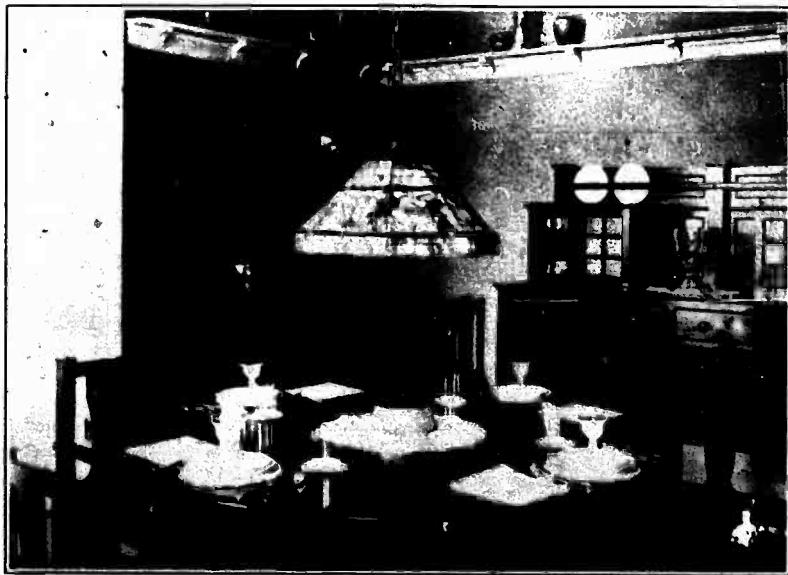
2. HOME ECONOMICS BUILDING AT IOWA STATE COLLEGE, AMES, IOWA.

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A. PRACTICE COTTAGE, WINTHROP COLLEGE, ROCK HILL, S. C.



B. DINING ROOM IN NEWCOMB COLLEGE, TULANE UNIVERSITY, NEW ORLEANS, LA.

chemistry, physiological chemistry, municipal sanitation, dietetics, nutrition, and food economics.

Hospital administration: Institution laundering, house structure, dietary administration, hospital organization and administration, accounting and office management, social legislation, municipal sanitation.

The completion of the four-year course is marked by the degree of bachelor of science. Technical certificates are granted in these four fields to mature students of approved qualifications who are unable to complete the full work for the degree, but who fulfill with high standing the technical requirements set forth by the department. Such requirements may usually be covered in two full years of work.

Section 7. COLLEGE COURSE RECOMMENDED BY THE ASSOCIATION OF AGRICULTURAL COLLEGES.¹

A committee of the association of agricultural colleges and experiment stations recently recommended a college course in home economics to follow two years of home economics in high school, for which college credit should be given. The college study should include the theory of the subject, especially the scientific principles involved, and should give a rational basis for an efficient practice. The general scheme of instruction should involve, according to the report—

(1) The presentation of the subject in concrete form, with accompanying practice; (2) the development of the principles involved, with laboratory practice; and (3) the application of these principles in a rational system of practice more advanced in type, with opportunities for devising new methods of practice and for experimental work. The required subjects would be: 1, home architecture and sanitation; 2, home decoration; 3, textiles; 4, selection and preparation of food; 5, economic uses of food; 6, household management. The student must select one elective from advanced cooking, dressmaking, or millinery, art needlework, and one from dietetics, food and nutrition, art in the home.

For students who have not had instruction in home economics in preparatory schools a minor college course is suggested. Students in either home economics course are to take also such work in mathematics, language, science, economics, sociology, principles of education, etc., as will make their whole college course a well-rounded scheme of liberal education, comparable with the degree courses in other lines, and at the same time contribute to the thoroughness of their work in home economics.

¹See article of A. C. True in *Journal of Home Economics*, 2 (1910), 248, and 3 (1911), 421.

II. OUTLINES OF INDIVIDUAL COLLEGE COURSES.

There are presented herewith outlines of various courses in home economics offered in different colleges and universities in a belief that in this way, better than in any other, an idea of the nature of the home-economics field and the way it is approached in courses of instruction can be given. The courses are not offered as models for imitation but as suggestions of typical practice. With the exception of the subject of foods and nutrition, it has not been thought advisable to present parallel courses in different institutions. Instruction in this subject is older than any other, and a comparison of collegiate courses may prove helpful. It is believed that instructors in elementary and secondary schools will find these outlines of collegiate courses of distinct help in organizing their own instruction. In any new subject the allotment of subject matter to schools of various grades must be a matter of development. What is originally thought advanced and proper for the college may ultimately find its place in the high school. On the other hand, the high school may attempt work which later will be found to belong more appropriately to the college.

Section 1. THE HOME-ECONOMICS MOVEMENT, UNIVERSITY OF ILLINOIS.

Prof. Isabel Bevier, of the University of Illinois, contributes the following statement:

* The course on "The home-economics movement" aims to make the student intelligent concerning the origin, development, and present status of home economics. In the accomplishment of this aim the following topics are considered: The education of women, the development of industrial education, the Fellenburg movement, manual-training movement, coeducation, the technical schools, land-grant colleges, and vocational education. The student thus gains information about these various movements and an appreciation of their contribution to the development of home economics. The sources of information are educational and industrial history in general, with special reference to and emphasis upon these particular topics. The reports of the Lake Placid conference on home economics, the Journal of Home Economics, and the reports of the National Education Association give the more specific work of organized home economics. The writings of Dexter, Thwing, Bagley, Snedden, and others are consulted for special phases of education. Study of current literature and the catalogues of the institutions offering work in home economics aid in an understanding of the present-day point of view. "The Home-Eco-

nomics Movement," by Bevier and Usher, is also used. The following references give some idea of the use made of current literature in the course:

Fellenburg Movement in the United States, Boone's Education in the United States, p. 223.
 Early Phase of Manual Training Movement, Pedagogical Seminar, vol. 5, p. 287.
 Girls' Colonial Schools, Education, vol. 22, p. 532.
 Place of Manual Arts in Education, Educational Review, Oct., 1911.
 Are We an Inventive People in the Field of Education, Science, Aug. 9, 1907.
 A Change of Educational Emphasis, Birge, Atlantic, vol. 103, p. 189.
 The College Woman Graduate, Education, June, 1907.
 Present Tendencies in Women's Colleges and Universities, Educational Review, vol. 35, p. 64.
 The College and the Household Sciences, Munsterberg, Good House-keeping, Jan., 1913.

There is little lecture work; the bulk of the course is made up of reports and discussion by the student, and, finally, an outline made by the student showing what seem to her the most important factors in the development of the subject. By this study the student acquires an insight into the numerous factors that have contributed to the development of the group of subjects known as home economics, as well as an appreciation of the relation of home economics to education and to life and the basis and breadth of view necessary for worthy work in it.

The course is given one hour a week for one semester, open to seniors and required of those who expect to teach home economics. The course is also of value to the supervisor of other courses because it shows the possible and profitable correlation of home economics with other subjects.

Section 2. COLLEGE COURSES IN ECONOMIC AND SOCIAL SCIENCE RELATED TO THE HOME¹

THE HOUSEHOLD AS AN ECONOMIC AGENT—UNIVERSITY OF CALIFORNIA.

A course on "The household as an economic agent" is given in the department of economics at the University of California. Prof. Jessica B. Peixotto has furnished the following outline:

I. *The problem of wants.*—(A) The theories of consumption advanced by the economists.

(B) The facts of consumption as observed by ethnographers, anthropologists, historians, and investigators of modern industrial society.

(C) The psychological bases of wants, utility, sense of beauty, display of power, conformity to tradition, etc.

II. *The household as the center of consumption.*—(A) The nature of the household.—1. The persons who compose the household; nature of the bond that brings them together; the relation of family life to the household and whether the two can be differentiated; why family life is considered a "norm" of social life; tendencies in modern family life.

2. The historic function of the household, and how the rôle of consumer pertained even when production as well as consumption centered there; the special characteristics of the modern household and how these affect its economic problems.

¹ See bibliography, Part IV of this report, Bulletin, 1914, No. 39.

3. The material aspects of the household. The dwelling—origin, types, standards. The furnishings—origin, quantity, quality, problems of durability. The meals—origin, character, habits, and forms of serving and eating. The occupations of the household—ancient, mediæval, and modern.

III. *The problems of income.*—(A.) The facts.—What statistics show as to the amount and distribution of income. What seems to be the amount and proportion between minimum incomes, "normal" incomes, middle class, and large incomes. The factors that enter in to fix earning power. The factors which tend to reduce and limit earning power—unemployment, wrong employment, crises, etc. The relative importance of the budget at the several levels of income.

• (B) *The sources of income.*—The man as chief breadwinner. The supplements to his earnings, married women at work, income from children's labor, from boarders—causes and several effects of these supplementary aids. At what level of income other sources, investments, etc., appear.

IV. *The problem of budgeting.*—(A) Allotment of expenditure.—The chief classes of needs for which the income must provide—food, shelter, clothing, and the so-called "higher life." The chief wants each of the classes includes; the division of income for purposes of expenditure and why so little thought has been given to such division. The advantages of determining beforehand, or at least of carefully studying annually the amount to be spent in the different departments of expenditure. Engel's laws of expenditure, on what they are based and how far investigation proves them true in the United States to-day. What finally determines the relation between total income and the amount allotted to special wants. The needs that must go unsatisfied with a small income and the relative utility of the needs that come with increase of income. The considerations which enter into the problem of economical housekeeping. Relation of household accounting to household management. The development of the small family system and the utility of constant comparison of this type with the large family group when considering the problems of household finance. Standard of living, what the term means, and its bearing upon the whole question here under consideration.

(B) *The purchase of shelter.*—The supply of shelter—types, grades, and values. What on the whole determines the quantity, quality, and cost of shelter available in a given community. The merits of the several movements for standardization of shelter. The questions of renting or owning and of separate versus group dwellings, advantages and disadvantages as to cost, reaction on habits of living, etc. The factors controlling the amount of income that must be paid for rent. Relation between amount that can be paid for rent and amount that must be paid for operating expenses. The reasons for the increase in quantity and rise in cost of this latter category of expenditure. Consideration of the several items under running expenses with a view to determining the real utility of each.

(C) *The purchase of food.*—Motive of purchase, nourishment, taste, variety, cheer, tradition, etc. The factors which control expenditure of food, the number of persons to be served, the range of commodities available, the dietitian's rules, public-health regulations of the city, storage facilities of the house occupied, habits of eating, etc.

Home preparation of food in relation to costs; the need of constant inquiry and revision as to serviceability and cost. The delicatessen shop, its uses and possibilities.

The serving of food. The formal meal, relative costs of serving as against great simplicity. To what extent simplification can be applied to the serving of food without interfering with the fundamental purpose of the meal. The

costs of hospitality; why these are chiefly food items and whether this should be the case.

(D) The purchase of clothing.—Motive for purchase, sex attraction, sense of beauty, desire to impress by splendid appearance, sex interest, habits of conformity, crave for variety, etc. What is meant by quality as applied to clothing. Fabrics employed and reasons for the diminishing stress on quality and the justification of "shoddy." Quantity of clothing; what determines and limits this. The theory of individuality in the use of clothes, and how far it proves a really solid theory. What rôle the knowledge of personal hygiene plays in controlling expenditure for clothing. Aesthetics and expenditure for clothing. Whether there is a shift in stress from expenditure for shelter and food to expenditure for clothing; reasons for this change. The nature and merits of Veblen's theory of dress. The connection between the rise of the manufacture of ready-made clothing and the increasingly rapid shifts in fashions, and the relation of this swift succession of fashions to costs and to the general efficiency of the household group. The lack of any definite principles for controlling the purchase of clothing.

(E) The expenditure of surplus.—At what level of income surplus appears. Relation between wise spending and the amount available for surplus. Whether lack of surplus tends to stultify such the social traits as generosity, sympathy, foresight. The needs customarily taken out of surplus—insurance, investment, recreation, education, church, charity, provision against sickness, travel, gifts, and whether the usual name for them, "higher life," is not of doubtful utility. The costs added to this category by the growth of group rather than domestic recreation. The costs of active citizenship.

(F) The purchase of service.—Whether this item is a necessary running expense or an item of surplus. The problems of domestic service. The legal and social status of the servant, and how this, along with the standards and conditions of work, influences the number of persons available and the wages which must be paid. Vocational training as a remedy—chances of success or failure. The factors of cost in keeping servants. The advantages and disadvantages of using the services of persons outside the house. The probable effect of the present high cost of service upon household management. What can be said for and against labor-saving devices as substitutes for domestic service. Other alternatives.

V. *The industrial system from the consumer's standpoint.*—(A) The passing of the household industries with the factory.—What the household industries were, what they are. The border-line industries—that is, a careful examination of the problems of home-made or ready-made.

(B) The industries supplying the household needs.—What these are—relation of consumer to them as to character of output, conditions of work and wages for those engaged in the industry, etc.; sweating and the consumer. Seasonal trades and the consumer. Whether securing better conditions of work and wages is best done as consumer or as citizen, that is, the problem of voluntary v. legal action for improvement of work hours.

(C) The market.—The problems of buying—credit v. cash purchase, telephone ordering v. going to market one's self. The cost of delivery and the merits of the several proposals to do away with these. The lure of the shop and its influence on expenditure. The bargain counter—cause and reaction of the persistent "sales" of the present time. The mail-order system—nature, meaning, and reaction on the purchaser and the community. The principles of good buying and whether these differentiate from the principles of good spending.

VI. Principles of spending.—The conflicting social theories that control expenditure, love of conspicuous waste and thrift. Whether there can be any general principles controlling spending. Necessity of emphasizing the largely subjective character of all such principles and therefore the necessarily wide variation in details of expenditure. An attempt to formulate some principles of expenditure which conform to the facts of household experience and daily life.

Textbooks.—The textbooks used this year are: Talbot, Marlan, and Breckenridge, S.—The Modern Household. Nearing, Scott—Financing the Wage Earner's Budget. Veblen, Thorstein—Theory of the Leisure Class.

The literature of political and home economics is freely drawn upon, along with histories of industrial evolution, Government reports, price catalogues of department stores, etc. About 200 titles are placed on the reserve shelf.

Method.—The method of work is as follows: In addition to the general and special reading described, each student fills out certain household accounting sheets, working wherever possible with actual household expenditures. (University of California, Syllabus Series No. 42—Statement of the Cost of Living.) This semester about 40 per cent are reducing actual expenditures of middle-class incomes to the form these sheets require, and about 10 per cent are working on real expenditures at a minimum income. The rest will, of course, be largely estimates based on studies of current prices. Tabulations are then made and studies follow as to their meaning in relation to the facts and psychology of expenditure. Further, each student selects a special topic for term investigation. This year there are four groups, of from 10 to 20 each, studying—

1. Domestic service. Here field work in employment bureaus and studies in some private homes are being done.

2. Expenditure for clothing. Here field work consists in investigation of prices for outfitting—(a) an infant; (b) a child of 6; (c) a girl of 16; (d) a boy of 10; (e) a high-school girl and boy; (f) a college man and woman; (g) a bride.

3. Cooperative housekeeping as a means to reduce cost and raise efficiency. No field work.

4. Studies in the mail-order system, through correspondence with large mail-order houses and visiting local mail-order departments in department stores, practically entirely field work.

Lectures, once a week; discussion once a week; and special conferences in sections, covering a period of 40 minutes, once a week; extending through one-half year.

COURSE ON THE ECONOMIC POSITION OF WOMEN—UNIVERSITY OF CHICAGO.

Prof. S. P. Breckenridge, assistant professor of social economics in the department of household administration, University of Chicago, furnishes the following outline of topics and references on the economic position of women as treated in the course on the legal and economic position of women, which is one of the group of economic and social courses related to the household offered in this department:

I. Women have always worked.

Bucher, Industrial Evolution, Cha. II, IV, VII.
Mason, Woman's Place in Primitive Culture.

- I. Women have always worked—Continued.
Thomas, Sex and Society, American Journal of Sociology, IV, 474.
The Barbarian Status of Women, Veblen, American Journal of Sociology, IV, 167, 352, 503.
Eckenstein, Woman under Monasticism, Ch. I, 1, 2; Ch. VII, 1.
Dixon, Women in the Paris Crafts, Economic Journal, 5, 209.
Lapham, Women in Elizabethan England, Journal Political Economy, 9, 562.
Taylor, The Modern Factory System, Chs. I, II.
In American Colonial Times, Abbott, Women in Industry, Ch. II.
In Early American Factory Organization, Abbott, III, IV, V, to p. 78.
- II. They have not always worked for wages.
Heather-Bigg, The Wife's Contribution to the Family Income, Economic Journal, IV, p. 50.
Collet, Report on the Changes in the Employment of Women and Girls in Industrial Centers, Part 1, pp. 4-5.
- III. They have been the victims of professional limitations.
Bradwell v. The State, 55 Ill., 555; 33 U. S., 130; 16 Wallace, 130.
- IV. Into what occupations do women go?
Abbott, Woman in Industry, Ch. I, Ch. V, 78-96, Appendix B.
Collet, The Employment of Women, Report to Labor Department, pp. 7-8.
Gonnard, La Femme dans l'Industrie, pp. 32-33.
- V. The age of gainfully employed women.
Twelfth Census Statistics of Women at Work, pp. 10, 11, 12, 13.
- VI. Marital status.
Twelfth Census Statistics of Women at Work, pp. 10, 11, 12, 13.
- VII. Special studies of industrial occupations.
 1. The Textile Trades, Abbott, Chs. VI, VII.
Woman and Child Wage-Earners in the United States, Vols. I, IV, XVIII.
 2. Boots and Shoes, Abbott, Ch. VIII.
 3. Cigar Making, Abbott, Ch. IX.
Butler, Women and the Trades, Ch. V, Economic Journal, X, 582.
 4. Clothing, Abbott, Ch. II.
Butler, Chs. VI, VII, VIII.
Woman and Child Wage-Earners in the United States, Vols. II, XVIII.
 5. Printing, Abbott, Ch. II.
Macdonald, Woman in the Printing Trades.
Butler, Ch. XVIII.
 6. The Telephone Service. Bureau of Labor Report on Investigation of Telephone Companies, Sixty-first Congress, second session, Senate Document No. 380.
 7. (a) The Economic Efficiency of College Women—Kingsbury Publications of Association Collegiate Alumnae, 1910, Series III, No. 20, p. 1.
(b) Collet, Educated Working Women.
- VIII. How far do men and women do the same work in the same way?
Webb, Alleged Differences in the Wages of Men and Women, Economic Journal, I, 635.
Women's Work in Leeds, Economic Journal, I, 46.
U. S. Bureau of Labor, Work and Wages of Men, Women, and Children, 1894, pp. 28-27, Tables 415-547.

IX. Has the separation a rational basis?

1. Can women compete?
2. Should they compete?
Ellis, Man and Woman, last ch., p. 384.
Thomas, Sex and Society, Ch. I.

X. Under what conditions have they worked?

Drage, The Labor Problem, 227-231.
Hobson, Problems of Poverty, 149-161.
Hobson, Evolution of Modern Capitalism, Ch. XII.
Levassieur, The American Workman, Ch. VII.
Report of the Royal Commission of Labor, p. 94, volume devoted to women's work.
Booth, Life and Labor, I, 406 f.
Sweatshop Labor in Chicago, American Journal of Sociology, 6.302.

XI. The problem of women's wages.

1. General alleged differences between the wages of men and women.
Article by Webb, cited Economic Journal, I, 635; Economic Journal, II, 173.
Hobson, Evolution of Modern Capitalism, Ch. XII.
Final Report of the Royal Commission of Labor, p. 90.
Nicholson, Principles of Political Economy, III, p. 159 f.
Mill, Book II, Ch. XIV (Effect of Custom).
Abbott, Appendix C, p. 363.
2. Earnings and expenditures—The living wage.
The Parasite Trades—Webb, Industrial Democracy, 749-755.
Cadbury, Work and Wages of Women in Birmingham, Ch. V.
Gonnard, La Femme dans l'Industrie.
Woman and Child Wage Earners, Vol. V.
3. Consequence of low wages.
 - (a) Charity.
Royal Commission on Poor Law, Appendix, Vol. XVII, p. 325 ff.
Cadbury, loc. cit.
 - (b) Prostitution.
Working Women in Large Cities, 1894, pp. 73-77. Report of Bureau of Labor.
The social evil in Chicago.

XII. Gainful employment and family life.

1. The relation of marriage to work.
2. The relation of employment of women to child life.
Taylor, The Modern Factory System, p. 425.
Fortnightly, May, 1875, vol. 23, p. 684.
Contemporary Review, Sept., 1882.
Perils and protection of infant life, Journal of the Royal Statistical Society, vol. 33, pp. 523-526 (1894, p. 1).
Jevons, Methods of Social Reform, pp. 156 ff.
Oliver, Dangerous Trades, Ch. V.

XIII. Remedies.

1. Legislation.
 - (a) Removing positive disabilities, Ill. Rev. Stat., 68. 64. 4.
 - (b) Admitting women to professions.
Re Bradwell, 55 Ill., 535; 16 Wallace, 33 U. S., 130.
Re Leach, 184 Ind., 665.
Laws of Maryland, 1902, p. 566, April 8, 1902.

XIII. Remedies—Continued.

1. Legislation—Continued.

(c) Granting the suffrage.

Bliss Cyclopedie of Social Reform.

Sumner, Woman Suffrage in Colorado.

2. Social protection.

Re Maguire, 57 Cal., 604.

Bergman v. Cleveland, 29 Chic. State, 651.

Ex parte Hayes, 98 Cal., 555; 20 L. R. A., 701.

See also 63 Chic. State, 202 et 208.

3. Industrial protection.

Hutchins and Harrison, History of Factory Legislation (English).

Woman and Child Wage Earners in the United States, Vol. XIX.

Goldmark, Fatigue and Efficiency.

(a) Working hours.

Commonwealth v. Hamilton Manufacturing Co., 120 Mass., 385.

Ritchie v. People, 155 Ill., 98 to 117.

Kelley, Ethical Gains through Legislation, IV, VII.

Brandeis Brief, Miller v. Oregon, 208 U. S., p. 412.

Ritchie v. People II, 244 Ill., p. 509.

(b) Work at night.

Outlook, July 13, 1907.

People v. Williams, 116 Ap. Div. Rep., 379.

Bulletin, International Labor Office, 1900-1908.

New York Labor Bulletin, June, 1907, pp. 135, 177.

(c) Sweatshop conditions.

Re Jacobs, 98 N. Y., 98.

State v. Hyman, 98 Md., 598 et 600.

Kelley, Ethical Gains through Legislation, VII.

The Minimum Wage, Trade Board Acts, 1900 Law Report, 9 ed. VII, 1900, ch. 22, p. 91.

Abbott, Women's Wages in Chicago; Some notes on available data, Journal of Political Economy, XXI, pp. 143-58.

Effect on Wages of Protected Classes, Hutchins and Harrison, App. A, Journal Royal Statistical Society, 1902, p. 302.

(d) Public provision for the unemployed.

Economic Review, April, 1907, 167; July, 1907, 290.

Economic Journal, March, 1907, 66.

Municipal Employment of Unemployed Women in London,

Abbott, Journal Political Economy, XV, 513.

Webb, Organization of Labor Market, pp. 18-21, 204-211, 278-300, 341-51.

Law Reports, Statutes, 1905 (5 Ed. 7 C. 18).

4. Education.

Report of Committee on Industrial Education for Women of Industrial Educational Association, Bulletin 4.

Report of Massachusetts Commission on Industrial and Technical Education (1906), pp. 25-127.

Woman and Child Wage Earners in the United States, Vol. VII.

5. Trade unions.

Herron, Women in Trade Unions, Ill. Univ. Studies, 1900-1905, p. 455.

Association Collegiate Alumnae, 1908, p. 40.

XIII. Remedies—Continued.

5. Trade unions—Continued.

Webb, Industrial Democracy, pp. 495-507.

Gonnard, 198.

Woman and Child Wage Earners in the United States, Vol. X.

6. Welfare work of civic federation.

McLean, Wage-Earning Women.

Butler, Women and the Trades.

(1) In extra-industrial organization.

(2) In industrial; the small unit, the home-used power.

7. Influence of intelligent consumption.

1. The demand for the Consumers' League label.

Gonnard, pp. 211-218.

American Journal of Sociology, V, 239, Aims and Principles of the Consumers' League, Kelley.

2. Demand for the union label.

LAW OF THE HOUSEHOLD—UNIVERSITY OF IDAHO.

Dean George D. Ayres, of the college of law, University of Idaho, has furnished an advance statement of a course on the law of the household which he proposes to give for the students of the home-economics department of the university. He states that the course is of the informational type rather than a discussion of legal principles and training in legal reasoning, as in the usual law course.

What is needed for the home-economics students is a general and accurate statement of the things that a woman should know concerning the law with which she will be brought into contact the most. I fancy that it is about what a lawyer, an old friend of the family, would say to the widow of his friend and to her daughters in case they were likely so to be situated that they could not always see him and he were advising them for a long time to come. There would be some things he could tell them that would be likely to keep them out of difficulty, and he might be able so to draw the line that they would have an idea correctly as to when they ought to consult a lawyer.

I shall go over the Idaho law regarding the home and its members, in their relations to each other and to outsiders, the laws concerning husband and wife, married and unmarried women, parent and child, guardian and ward, the laws concerning descent of real estate and distribution of personal property in Idaho, a general idea in regard to courts of probate, and what a woman should do who has reason to make use of them, the law of the property rights of husband and wife as such, their respective rights in regard to each other and over their children, the laws of marriage and divorce and of annulment of marriage. I shall say something concerning the management of property and regarding investments. A general discussion of the pure-food laws will be included, outlining at least their purpose and scope. It will be difficult to get my hearers in a short course to catch the spirit of it all with enough detail to enable them to act correctly as a rule and to know just when to consult wise, careful, and considerate counsel: but my aim, as at present advised, will be somewhat in the direction outlined.

COURSES IN SOCIOLOGY.

Prof. Charles A. Ellwood, professor of sociology in the University of Missouri, contributes the following statement on "Courses in

sociology which ought to be provided in connection with a collegiate department of home economics."

Home economics is a good example of the complexity of an applied social science. So far as it deals with the material aspects of the home, it rests, of course, chiefly upon the physical sciences, and many of its advocates have apparently seen nothing in their science but these material problems of the household. Physics, chemistry, physiology, bacteriology, etc., have accordingly appealed to them as the only sciences necessary for the pursuit of home economics. Such a view is, of course, possible, if one regards the "home" or the household as simply an adventitious collocation of persons whose main interests are in securing suitable food, clothing, and shelter. In this sense home economics would apply to a hotel, or a rooming house, or any other group of people practicing a single economy, as well as to a home.

If we take a different view, however, and regard the family and the home as great institutions of society, carrying on not only within themselves all phases of a normal human life, but also related to a larger life outside of themselves, then at once home economics becomes an altogether different subject. Its center of interest is no longer in the material equipment of the home, but in the home or household as a form of human association; that is, its center of interest is in the relations of individuals to one another, and not in their relations to things.

It is evident that, as soon as this view is taken, home economics becomes a branch of applied sociology, with the creation of an ideal home and family life as its great purpose. It no longer rests chiefly upon the physical sciences, but must get its point of view and spirit from sociology; for sociology is the science which has as its center of interest the relations of individuals to one another. Of course, sociology is itself almost as much of a biological or physical science as it is a psychological or mental science. Nevertheless sociology finds that the main thing in the relation of individuals to one another is the way in which they are adjusted to one another, and this adjustment undoubtedly depends as much upon spiritual as upon material factors. Not only do physical environment, health, and so on. affect the relations of individuals to one another, but also habits, purposes, and ideals of life.

From a sociological standpoint, then, the home, or household, is one of the general institutions of society intrusted with the carrying out of certain important functions. Just what these functions are, or ought to be, can be clearly understood only from a careful study of general sociology, which takes up the whole problem of the origin, development, structure, and functions of the forms of human association. How the home, or household, originated, how it has come to be what it is to-day; what its functions are in society; how its efficiency can be increased; in what way its present dangers can be overcome; what the ideals are that shall guide in seeking to control and direct its future development—all of these questions are rooted in general sociology. Even the young student will be hardly prepared to understand the real significance of courses in home economics in their relation to our present civilization without some preliminary study of sociology. On the other hand, a student who once understands the home in its relation to the larger life of which it is a part, will approach all the problems of home economics with a deeper appreciation of their connection with real human life.

I would, therefore, strongly advocate that an elementary course in sociology should precede or accompany even an elementary college course in home economics. Other courses in sociology should be taken along with the more advanced courses in home economics. At least three courses in sociology should

be provided for college students in home economics, and the first two of these should certainly be required.

First, there should be an elementary course in general sociology, taking up in a systematic manner the study of the principles of social organization and evolution. In this course the factors in the physical environment, in the biological constitution of man, and in his psychological nature which affect the social life should be thoroughly studied. The whole question, in other words, of the origin and development of civilization, on the one hand, and of the structure and functioning of present institutions on the other, should be gone into with abundant concrete reference to present-day problems and situations.

Secondly, there should be a course on "domestic sociology," dealing specifically with the origin, development, structure, and functioning of the family and the home as human institutions. In this course there should be taken up, first of all, the concrete study of the structure and functions of the family; then the questions concerning the origin and evolution of human family life; then the historical development of the family in western civilization; then its present problems and tendencies, its relation to modern industry, to population and the birth rate, to the social and moral life of the community; finally, the functions of the family in the transmission of physical heredity, in the physical care of the child, in the transmission of the spiritual possessions of civilization, and in the development of moral ideals and standards should be considered. The whole course should be such that none of the burning problems that concern the family and the home life of the present should be left unconsidered.

These first two courses might be advantageously combined into one, provided sufficient time were given. The study of the family could be made to illustrate the principles of general sociology, while at the same time the principles of sociology would guide in reaching conclusions in regard to practical problems concerning the home. Not less than six hours toward graduation should be allowed for these two combined courses.

A third sociological course, which will be needed by students in home economics, is a course in the study of practical movements for general social betterment. The home as an institution is open to all the influences of the community life, and should therefore participate in forwarding all movements for social improvement. The relation of these movements to the home life is therefore vital. Such movements as public health and sanitation, the public protection of childhood and motherhood, public education, housing reform, the proper treatment of dependent, neglected, and delinquent children, the relief of the poor, the care and training of defectives, the proper treatment of the criminal, the suppression of vice, and all other organized movements for general social betterment should receive careful consideration with reference to their relationship to the home life.

Section 3. COLLEGE COURSES IN NATURAL SCIENCE RELATED TO THE HOUSEHOLD—CHEMISTRY, PHYSIOLOGY, BACTERIOLOGY, HUMANICS, PHYSICS, ENTOMOLOGY.

CHEMISTRY AS RELATED TO HOUSEHOLD ECONOMICS—SIMMONS COLLEGE.

Prof. Alice F. Blood furnishes the following statement:

Simmons College, Boston, offers two alternative series of courses in chemistry to students of household economics who are candidates for a degree and specializing in household science subjects. A course in descriptive inorganic chemistry serves as the foundation for all subsequent work in chemistry. Eight hours a

¹ For additional references, see bibliography, Part IV of this report, Bulletin, 1914, No. 39.

week throughout the year are devoted to the course. Two lectures, two recitations, and four laboratory hours are given. Recitation sections are small, and each student receives individual attention. The course is devoted primarily to a careful study of the fundamental principles of inorganic chemistry, and every effort is made to develop reasoning power. The student is encouraged to observe and explain the chemical phenomena she meets in daily life, and part of the laboratory time is devoted to experiments upon materials of household interest. Such experiments in applied chemistry are regarded as incidental to the development of principles rather than as ends in themselves, and are included only when they can be developed logically in relation to the pure chemistry under consideration.

Beginning with the second year a differentiation is made between the long and the short sequence in chemistry. Students who have shown a special aptitude for science are encouraged to continue their work through the four years. The second year is devoted to the study of organic chemistry, the time allotted and the method of treatment being the same as in the inorganic work. The course is essentially pure organic chemistry, but the fact is kept in mind that the students have for their goal the study of foods in their chemical and physiological aspects. In the third year seven hours each week are given to quantitative work. Six hours are given to laboratory work and one hour to lecture and discussion. The greater part of the first term is occupied in developing quantitative technique and the second term with the application of quantitative methods to food analysis. In the lectures of this course the composition of foods is thoroughly discussed and analytical methods are considered both in their relation to dietary studies and to the detection of food adulteration. In the fourth year a student may extend her familiarity with methods of food analysis or devote her time to the study of some simple problem.

The larger number of students complete their chemistry in the second year with a course in elementary organic chemistry. The same amount of time—eight hours per week—is given to the subject as is required for the corresponding course in organic chemistry for the long sequence. This includes two lectures, two recitations, and four hours of laboratory. While it is intended that the course shall have a disciplinary value, it is the main object to equip the student for the understanding of the chemical aspects of cooking, bacteriology, physiology, and dietetics. The typical groups of organic compounds are described in logical sequence, but particular stress is laid upon those compounds that occur in plant and animal tissues and upon the changes food constituents undergo in cooking, in digestion, and under the action of microorganisms. About a third of the laboratory time is devoted to experiments usually given in a course in physiological chemistry, and typical qualitative tests for food adulteration are also included. To make time for these laboratory applications of organic chemistry, many of the organic preparations and reactions usually carried out on a quantitative basis are here given as test-tube experiments. It is, in general, the aim to present experiments in applied chemistry as illustrations of the principles of pure chemistry rather than as isolated procedures. The following examples serve to illustrate the point of view. The test for benzoate of soda in foods is made at the time that the general properties of benzoic acid are being studied; the test for bleached flour is given as an application of the diazo reaction; the use of alcohol as a solvent in the preparation of tinctures and essences and in the removal of grass stains is studied in connection with the general reactions of alcohol.

We hope to prepare in these courses teachers of household science who are able to appreciate the bearing of chemistry on their work, who are able to solve the problems as they arise by scientific methods, and who are able to keep up with the advances in science which have a bearing on their work.

PHYSIOLOGY AS RELATED TO HOUSEHOLD ECONOMICS—SIMMONS COLLEGE.

Prof. Percy G. Stiles, recently of Simmons College, now of Harvard University, furnishes the following regarding courses in physiology related to household economics in Simmons College, Boston:

Four courses are given, adapted to the varying needs of four groups of our students. Two of these figure in the program for those who are spending four years with us and who are candidates for the degree of B. S. The majority of these regular undergraduates elect what is called "short biology," and for these students a course in physiology is introduced in the second semester of the second year. It has been preceded by a year of general chemistry, a half year of organic chemistry, a year of physics, and a half year (90 hours) of general biology. Physiology is presented to this group in 30 lectures, with occasional demonstrations, and 30 recitation periods. All the main divisions of the subject are dealt with, but the facts about digestion, metabolism, animal calorimetry, and the balance of income and outgo are given a central position. The discussion of the hygiene of nutrition is deferred to the second semester of the third year, when it forms an important part of a 45-hour course called "advanced hygiene."

A smaller number of our regular students elect more extensive work in biology, and these take physiology in their third year. The course runs through both terms and amounts to 120 hours. Nearly half of this is laboratory work. The students enrolled have had all the preparation described above and in addition a course of 60 hours in anatomy and histology. The length of this major course in physiology is such that all the material connected with nutrition can be given at least as fully as to the other group, while the remaining subjects are amplified to the same scale. The result is a symmetrical rather than a specialized course, and it is of the same scope usually aimed at in good medical schools. Howell's Textbook and Cannon's Laboratory Course are used.

The course in advanced hygiene previously referred to is common to both groups.

A course for college graduates—chiefly intended for those who are candidates for our degree after two years of postgraduate study—is offered in the first semester of their second year. It resembles the minor course for undergraduates, but is given in 45 hours instead of 60; it is assumed that the maturity of the students warrants a more condensed presentation of the subject. Our experience has not wholly justified this supposition.

Finally, we give a course for those who are with us only for one year and who are not candidates for a degree. These students have had general chemistry, but practically no other supporting science. They take bacteriology simultaneously with physiology. For this course Stiles' Nutritional Physiology¹ was written. It is necessary to include the elements of general biology in opening the treatment and the hygiene of nutrition later on. The course for this elementary class comprises 45 lectures and 30 recitations. There is no individual laboratory work, but there are a number of demonstrations.

GENERAL BACTERIOLOGY AND FERMENTATIONS—IOWA STATE COLLEGE.

Prof. R. E. Buchanan, professor of bacteriology, Iowa State College, furnishes the following statement:²

General bacteriology and fermentations is a required subject for all students in the division of home economics in the second semester of the junior year.

¹ Stiles, Percy G. *Nutritional Physiology*. Philadelphia, Saunders, 1912.

² See also Buchanan, Robert Earle, and Mrs. E. D. *Household Bacteriology, for Students in Domestic Science*. New York, Macmillan, 1918.

By this time the student has had five semesters of work in chemistry, including general chemistry, qualitative analysis, organic chemistry, food analysis, and physiological chemistry. The course consists of two recitations or lectures per week and two 2-hour periods in the laboratory. In the lecture work a short historical introduction is given with emphasis upon the theory of spontaneous generation and the development of germ theories of fermentation and decay and of disease. The morphology, classification, and distribution of the bacteria, yeasts, and molds is next treated. A larger relative proportion of time is devoted to a discussion of yeasts and molds than in the classical courses in bacteriology. Several lectures are devoted to an outline of the physiology of microorganisms, including a study of the effects of physical agencies, such as moisture, osmotic pressure, light, and temperature; relation to chemical environment, including the topics of antiseptics and disinfectants; changes in physical environment produced by microorganisms and the synthetic and analytic changes brought about by organisms in the media in which they live.

About one-third of the semester is devoted to the topics already mentioned. The remaining two-thirds of the semester is divided nearly equally between a consideration of fermentations and lectures on the relation of microorganisms to health. Under the former heading, the enzymes of microorganisms, their classification, and their importance are considered. Lectures are given upon the various methods of food preparation, such as heat, cold, desiccation, use of preservative substances, etc., with particular reference to microorganisms which may cause spoilage. This is followed by lectures upon changes of economic importance brought about by microorganisms in various inorganic and organic compounds. This includes an outline of the nitrogen, sulphur, phosphorus, and carbon cycles in nature. Alcoholic fermentation and the principal types of yeast responsible are next considered. Special emphasis is laid upon alcoholic fermentation of milk, and upon lactic fermentation. The principal organisms responsible for lactic acid fermentation and their importance in the souring of milk and the preservation of certain foods, such as sauer kraut, are next discussed. Acetic fermentation, including methods of vinegar manufacture; butyric, citric, oxalic, and other acid fermentations, and the deterioration of foods preserved by means of acids due to the oxidation brought about by molds, are next considered. The fermentations of cellulose, starch, the hemicelluloses, and pectin are considered in their economic relations. Under the last topic some time is devoted to a discussion of methods of retting in preparation of linen and hemp. The effects of microorganisms upon the organic nitrogenous molecule, particularly the disintegration of proteins with formation of flavoring substances, substances having disagreeable odors, and ptomaines are emphasized. The practical application of this knowledge is made in the discussion of the ripening of meats and the preparation of various cheeses and other food products.

The student in home economics should know not only the relation of microorganisms to foods, but should have as well sufficient knowledge of the relation of microorganisms to disease to enable her to study such topics as home sanitation, home building, and home nursing intelligently. One lecture is devoted to the various theories of disease, methods of spreading of disease, types of disease, and the uses of animals in scientific work. We find that it is helpful to give the student a clear understanding of exactly how and why animals must be used experimentally in the laboratory. Enough time is devoted to a discussion of immunity to enable the student to secure a general idea of the means used by the body in resisting disease, a knowledge sufficient for intelligent use of such terms as antitoxin and vaccine. The principal organisms causing disease in man are next discussed, particular emphasis being laid upon the points of entrance into the body, the channels through which the organisms

leave the body, and the methods of prevention and immunization. The subject of water contamination, methods of examination, methods of purification, and relationships to health are considered in some detail. The same topics are considered with reference to milk and other foods.

The laboratory work is devoted to demonstration of the facts studied in the classroom, so far as time permits.

"HUMANICS," A COURSE IN APPLIED BIOLOGY—UNIVERSITY OF WISCONSIN.

Prof. Abby L. Marlatt gives in the department of home economics of the University of Wisconsin a course in biology applied to human problems which is intended to—

focus in one course such discussion as might lead to a wiser understanding of the fundamental laws of heredity and environment, as typified in the human race. * * * The central thought of the course is conservation of human life by improving individuals, homes, cities, so that future generations may reach higher levels of efficiency than those preceding them have reached.

The course includes the following topics:

- I. Embryology—Development of the infant with a study of cell division.
- II. Theories of inheritance—Physical basis of theories; modern development by Mendelian law.
- III. Effect on the germ-plasm of social diseases, alcoholism, and the drug habit—The inheritance of acquired characteristics; the effect of mental diseases in parents.
- IV. Study of social evils and problem of education with regard to them.
- V. Development of child after birth—Physical development; mental development; adolescence; race characteristics; effect of country life and town life on physical and mental development.
- VI. Review of theories of education as applied to types of children—School statistics showing rate of growth in boys and girls.
- VII. Emotional development—Education during adolescence.
- VIII. Problems of city and State with reference to infant mortality—Effect of woman's industrial work on infant mortality; study of laws of Europe and America as affecting woman in industry; study of death statistics, showing diseases and effect of the race on same.
- IX. Civic efforts toward education of the foreign population and the poor and ignorant in the large American cities so as to reduce infant mortality—French system for mothers; necessity for survey of cities.
- X. Institutional life—Effect on death rate; effect on physical development; effect on mental development; cost to the country; remedies.
- XI. Reduction of birth rate and effect on population—Duty of the educated in the preservation of the race.
- XII. Child in industry—Effect upon State laws and necessary legislation.
- XIII. Study of environment.
- XIV. The housing problem.
- XV. The education of the will, with reference to environment.
- XVI. Study of nervous states and their hygiene.

BUREAU OF EDUCATION

BULLETIN, 1914, NO. 38 PLATE 4



A. PRACTICE COTTAGE FOR HOME ECONOMICS STUDENTS, UNIVERSITY OF WISCONSIN, MADISON, WIS.



B. KITCHEN, UNIVERSITY OF WISCONSIN, PRACTICE COTTAGE.

BUREAU OF EDUCATION

BULLETIN, 1914, NO. 38 PLATE 5



A. DINING ROOM, UNIVERSITY OF WISCONSIN, PRACTICE COTTAGE.



B. BEDROOM, UNIVERSITY OF WISCONSIN, PRACTICE COTTAGE.

HOUSEHOLD PHYSICS—KANSAS STATE COLLEGE.

Courses in applied physics for women are developing in various institutions.¹ In the Kansas State Agricultural College home economics students who have not studied physics are given an introductory year of physics, three hours a week of class work and two hours of laboratory, followed by a required 12 weeks' course in household physics. Prof. E. V. Floyd, who gives the two courses, has furnished the following statement regarding them:

Physics can be made more useful for girls by selecting illustrations drawn from their own experience and by making applications of concern to them.

Teachers of physics are very generally agreed with respect to the physical principles which should make up a first course in the subject. There is, however, slight agreement with respect to the relative emphasis which should be placed on these principles. The reason for this is obvious if the vast difference in interests, the difference in environment, and the difference in the lives of students before entering the physics course, as well as after leaving it, be taken into consideration.

To illustrate: Gas as a fuel in a gas engine, in a course for girls, should receive less emphasis than gas as a fuel for the gas range in the home. The principles of mechanics of fluids can be discovered and thoroughly mastered in a study of water systems for homes and for cities.

In brief, in this course the teacher studies the application with the class and discovers in it the underlying physical principles. This does not mean that the course is devoid of principles. It means rather that in a course so conducted the student has a firmer grasp of physical principles than he has in case the abstract principles are first studied. As a rule, he is left to find the applications for himself. This he seldom does, and physics has failed to assist him in understanding his environment. Let the student discover the physical principle where he can again use it—in its application.

The textbooks in first physics are of the nature of dictionaries and are used as such in the introductory course. Half to two-thirds of the class hour is used in a study guided by the teacher. This study is done in the classroom, at the city pumping station, at the ice plant, the electric light plant, anywhere in fact where the physical principles we are in search of are at work.

The advanced 12 weeks' course in household physics, originally outlined by Prof. J. O. Hamilton, head of the department, is given by Prof. Floyd as a series of lectures, since there is no textbook available. Studies of the applications of physics are made and underlying principles are sought in order that other applications may be made by the student. The topics treated in this course are as follows:

Mechanics—the weights and measures; mechanics of the sewing machine; surfaces, polishing and sharpening; physics of water supply; plumbing and sewage disposal; gas supply; vacuum cleaners; household tool chest. Heat—fuels; stoves; house heating—hot air, hot water, steam; refrigeration; ventilation. Electricity—commercial sources; measurement and sale; heating effect

¹ Those interested should see also Part II of this report (Bul., 1914, No. 37, p. 98), where a high-school course in household physics is outlined, and should also consult the texts in this field there mentioned.

of electric current; chemical effect; magnetic effects; gasoline electric-generating plant; electric wiring; telephones. Light—natural source of light; the eye; artificial sources of light; illumination; color.

APPLIED ENTOMOLOGY—INSECT PESTS OF THE HOUSEHOLD.

Prof. J. G. Sanders, professor of economic entomology at the University of Wisconsin, contributes the following suggestions regarding topics in applied entomology which concern the household:

In comparison with the tropical regions, the temperate zones of the earth are rather free from those destructive or dangerous forms which occasionally menace human life and property. However, an increasing number of insect guests of our households are being indicted as dangerous intruders and many are under suspicion. More general diffusion of knowledge concerning the control of household pests and prevention of their ravages is highly desirable. The appended outline of household insects offers a general summary of the various subjects for popular reading or for careful study or investigation. Necessarily, various repetitions occur under the several headings on account of the omnivorous habits of some of the pests. Several helpful books and bulletins are cited below.

HOUSEHOLD INSECTS AND RELATED CREATURES.

Insects, etc.	Annoying.	Control	Preventive.
	Disease carriers.		Remedial.
	Destructive.		

Annoying, but not necessarily destructive forms.

Ants.	Mosquitoes.	Non-insect forms:
Bedbugs.	Flies.	Mites and "chiggers."
Cockroaches.	Fish moths ("silver fish").	Ticks, spiders.
Fleas.	Wasps and hornets.	House centipede.
Lice.		

Disease carriers and transmitters.

Mosquitoes.	Bedbug.
Malaria.	Cockroach.
Yellow-fever.	House or typhoid fly (several intestinal disorders).
Flea (bubonic plague).	Ticks (spotted and relapsing fever).
Body louse (typhus fever).	

Essentially destructive forms.

House (building or structure):	House furnishings and clothing, (fabrics, furniture, and books):
Termites (white ants).	Moths (clothes).
Carpenter ants.	Carpet beetles.
Carpenter bees.	Book louse.
Wood-boring beetles.	Cockroaches.
	Wood-boring beetles.
Food pests:	Ornamental house plants:
Cockroaches.	Scale insects (mealy bugs).
House ants.	Aphis.
Cheese skipper.	White fly.
Lard and ham beetles.	"Red spiders."
Moths (cereals and	Caterpillars.
Beetles, dried fruits.	Beetles.
	Maggots.

Controls.

Remedial methods:

Fumigation—

Potassium cyanide (dangerous).
Sulphur fumes.
Carbon-bisulphide.
Carbon tetrachloride.
High temperature (120°-130° F.).

Pyrethrum.

Poisons—

Baits and traps.
Arsenicals.
Contact insecticides—
Oil emulsions.
Gasoline and kerosene.
Turpentine.
Hot water and steam.

Sprays and dips:

Soap solutions.
Tobacco decoction.
Kerosene emulsion.
Carbolic emulsion.
Paris green.
Arsenate of lead.
Sulphur (powdered) (for red spider).

Preventive methods:

Sanitation.
Drainage.
Destruction of breeding places.
Screens.
Sealed containers.
Exposure to sun (clothing, etc.).
Camphor gum.
Whitewash.
Kalsomine.
Ointments.
Fumigation—
Tobacco.
Pyrethrum.
Sulphur.

REFERENCES.

I. *United States Bureau of Entomology—Bulletins.*

No. 4 Principal Household Insects of the United States.
5 Insects Affecting Domestic Animals.
8 Insects Affecting Stored Vegetable Products.
25 Mosquitoes of the United States.
27 Some Insects Injurious to Ornamental Plants.
78 Loss Through Insects that Carry Disease.
90 Insects Affecting Stored Cereal Products.

II. *United States Bureau of Entomology—Circulars.*

No. 5 Carpet Beetle or "Buffalo Moth."
13 Mosquitoes and Fleas.
19 The Clover Mite.
34 House Ants.
36 The True Clothes Moths.
37 Hydrocyanic Acid Gas for Fumigating Greenhouses.
40 Mosquitoes of North America.
48 Hydrocyanic Gas Against Household Insects.
47 The Bedbug.
48 The House Centipede.
49 The Silver Fish.
50 The White Ant.
51 Cockroaches.
57 The Greenhouse White Fly.
71 House Flies.

III. *United States Department of Agriculture—Farmers' Bulletins.*

- No. 45 Insects Injurious to Stored Grain.
- 127 Important Insecticides.
- 145 Carbon Bisulphide as an Insecticide.
- 155 How Insects Affect Health in Rural Districts.
- 450 Some Facts About Malaria.

IV. *Bulletin New York State Education Department.*

- No. 465 (Mus. Bull. 136) Control of Flies and Household Insects.

V. *Books.*

- The House Fly. Howard. F. A. Stokes Co., New York.
- Injurious Insects. O'Kane. Macmillan Co.
- Insects and Disease. Doane. H. Holt & Co.
- Our Insect Friends and Enemies. Smith. Lippincott Co.

Section 4. COLLEGE COURSES IN FOOD AND NUTRITION.

A GENERAL COURSE IN FOODS—UNIVERSITY OF MISSOURI.

Prof. Amy L. Daniels furnishes the following statement regarding a course in the University of Missouri:

The course entitled "General foods," offered at the University of Missouri, has for its aim the teaching of the fundamental principles of human nutrition. The course embraces a study of the composition of foods, their preservation and preparation for the table, the changes produced during digestion and absorption, and the relation of the various foodstuffs to metabolism. It is a ten-hour course (five hours for two semesters), consisting of two laboratory periods of 60 minutes each, and three lecture periods of 50 minutes each. During the time when meals are being served, each student responsible for the meal necessarily puts in a larger number of hours than is scheduled.

Students registering for the course must have completed a five-hour course in inorganic chemistry, a three-hour course in organic chemistry, a five-hour course in botany or some biological science, and either our introductory course in home economics (Home Economics I) or its equivalent. Physiology and bacteriology must be offered as prerequisites or they must be taken parallel with the general foods' course.

In general, the method of conducting the course is inductive; formal receipts and directions are not given. The students are led to reason from principle to application, and to learn by experimentation the relationship of the different proportions of ingredients used in the various dishes prepared. When definite directions are given, less thought enters into the processes and the work becomes mechanical. During the course three sets of notes are kept; one records the laboratory experiments and receipts which have been worked out, a second the lecture notes, and a third, which may be kept in the form of a card catalogue, contains the reading notes.

No one book has been found sufficiently comprehensive to suit the requirements of the course. The Principles of Nutrition, by Jordan, and The Chemistry of Food and Nutrition, by Sherman, are the texts regularly used; but Luuk's Science of Nutrition, Rose's Laboratory Manual of Dietetics, Hutchinson's Food and Dietetics, Halliburton's Chemical Physiology, Wiley's Foods and Their Adulteration, and the many Government and experiment station

bulletins are used frequently. From time to time reading assignments are given in the various periodicals dealing with the different subjects of the course.

The equipment for the work consists of two laboratories, one in which the chemical and physiological experiments are performed, and another in which the experiments pertaining to food preparation are carried out. Sometimes both laboratories are in use during the same lesson, at other times one laboratory may be used exclusively for a series of several lessons. The diningroom is used for serving the meals, which are prepared for typical families at definite costs.

The subject matter of the course consists of a study of the composition of the various foods, with methods of preserving and preparing these for use. Canning, preserving, pickling, the making of jams, jellies, etc., are considered in order. The composition of the carbohydrates, their characteristics, classification, means of identification, as well as the changes produced during cooking, digestion, and absorption, are studied. Typical dishes from the carbohydrate foods, for example, fruits, vegetables, and cereals, are cooked, applying the principles learned in chemical and physiological study of carbohydrates. The ash constituents, fats, and proteins are studied in the same detail, applications being made in the cookery of eggs, fish, meats, cheese, the making of salads, custards, frozen dishes, etc. Several kinds of baking powders are analyzed; batters and doughs in which baking powder, air, or steam is the leavening agent are prepared, and the proportions of materials used to make breads, cakes, and pastries are worked out. The action of yeast and gas-producing bacteria are studied in connection with bread-making. Some time is devoted to testing for food adulterants. A considerable amount of time is spent on infant feeding. Milk formulae are prepared according to different methods of modification, and the significance of the different substances found in the excreta of infants is considered in relation to the food intake. Methods of analyzing these substances are studied. Consideration of the dietetic needs of the body at different ages and under different physiological conditions forms a considerable part of the course. Meals are planned in accordance with the different dietetic standards, prepared and served for definite costs.

At the end of the course it has been found sometimes that students who are able to pass creditable written examinations have not acquired sufficient skill in cooking to warrant their being recommended for teaching positions. In order to meet this difficulty, the grade is withheld until the student has satisfied the requirements of the course by passing certain examinations in practical cooking, which are given at the beginning of the fall term following the completion of this course. In this way the student has an opportunity to acquire skill during the summer months.

COURSE IN FOOD AND NUTRITION—UNIVERSITY OF ILLINOIS.

The following statement is contributed by Prof. Nellie E. Goldthwaite, of the University of Illinois.

In the household science department of the University of Illinois five food courses are offered. These, in order, are as follows: Course 1, Principles of the selection and preparation of food; Course 2, Economic uses of food; Course 14, Special problems in connection with the service of food; Course 5, Dietetics; Course 4, Food and nutrition.

As indicated by this enumeration, the last mentioned, course 4, is the most advanced one of the series, courses 1, 2, and 5, in order, being prerequisite

to it. A few words concerning these prerequisite food courses will serve to make clear the foundations upon which course 4 is built.

In recognition of the fact that an intelligent study of foods rests primarily upon a knowledge of the fundamental facts and principles of several of the natural sciences, the University of Illinois requires some preliminary science training as prerequisite to the beginning of food courses. Accordingly, students to be eligible for course 1, Selection and preparation of food, must have completed one year's work in general chemistry (5 hours) at the university. Course 6, Economic uses of food, is a continuation of course 1. These two courses (3 hours each) constitute one year's work and are fundamental to succeeding courses in foods.

In these courses the student has learned the fundamental processes that underlie the preparation of food. She has gained a knowledge of food principles. She has learned, as stated in the Laboratory Guide (Bevier and Van Meter), "the principles of cooking by the same general methods as those by which the principles of chemistry are taught." The dishes prepared have been chosen because they illustrate principles of cooking. Throughout both these courses the economics of food preparation have been emphasized.

As the study of foods is continued, the preliminary knowledge of science required for entrance to courses 1 and 6 does not suffice; therefore, this knowledge is increased by succeeding courses in pure science, taken either as prerequisite to the more advanced food courses or parallel with them.

Hence, course 5, Dietetics, increases its prerequisite science requirement by a second semester's work in chemistry (5 hours), and by one semester's work in physiology (5 hours), which, in turn, demands as a prerequisite, zoology (5 hours).

The course in dietetics aims to make the student intelligent concerning the food requirements of the normal human body under varying conditions of age and activity; the means by which the subject of human nutrition has been and is being studied; the original sources of information on the subject; the viewpoints and conclusions of various investigators. The student is required to solve many problems, the data for which are taken from the experimental work of these investigators. By laboratory practice the course aims to present in concrete terms the deductions discussed in the classroom; to give the student intelligent ideas concerning the amount and kinds of fuel, which she is daily supplying to her own body. This course aims further to give some knowledge concerning the dietetic treatment of diseases and to give some practice in the preparation of invalid dishes.

Course 4, Food and nutrition, the final undergraduate course in foods, succeeds course 5 in the curriculum. To take this course intelligently, further knowledge of science on the part of the student is demanded; hence, course 4 adds to its list of prerequisites the following courses in pure science: Chemistry, quantitative analysis (5 hours); organic chemistry (5 hours); and bacteriology (5 hours), which may be either a prerequisite or a parallel course.

Because of the extent and character of this science basis, course 4 is essentially for seniors or for graduate students. It is a five-hour course, and the instruction is given by means of lectures, laboratory work, reading, recitations, and discussions. Papers dealing with certain topics connected with the course are required of the student at intervals. Ten hours per week are spent in classroom and laboratory.

The laboratory instruction follows the Food and Nutrition Manual prepared by Miss Bevier and Miss Usher, proteins, fats, and carbohydrates being taken up in order.

In studying the proteins, constant reference is made to the classification adopted by the joint committees of the American Physiological and Biochemical Societies. By following this classification the intricate chemistry of the proteins appears in clearer light than is otherwise possible.

Various representatives of the three general classes of proteins, simple, conjugated, and derived, are tested in regard to elementary composition; their solubilities; their color reactions; their precipitation reactions, including salting-out experiments; their behavior on heating to various definite temperatures; their behavior under the combined influence of heat and of food accessories, such as salt, or salt and acetic acid. Typical proteins are subjected to digestion experiments, and the products both of peptic and of pancreatic digestion noted.

This study of the proteins is followed by that of the fats. These are studied in regard to their preparation, solubilities, melting points, saponification, including separation of products. The ordinary vegetable and animal fats, including various commercial fat substitutes, are included in this study. Distinctions between the fats proper and the essential oils are drawn. Also the nitrogenized-phospherized fat, lecithin, is separated from egg yolk and studied; cholesterol likewise.

The carbohydrates are next considered, and the principal divisions are studied in regard to solubilities; Fehling's test; Molisch's test; behavior with iodine; behavior on heating; behavior with yeast; formation of osazones; behavior on hydrolysis.

The important types of the monosaccharides, of the disaccharides, and of the polysaccharides are studied. Starches from various vegetable sources are examined under the microscope, and the effect of heat both on the dry and on the moist substances is studied carefully. Glycogen is isolated from oysters and studied. Pectin is studied in fruit juices and its behavior with varying proportions of sugar observed.

In connection with the detailed study of each of the organic food principles, the chemistry of which is especially emphasized, practical applications of the experimental results are constantly discussed from the housekeeper's point of view.

Following these studies of the food principles, a careful study of each of the following food materials is taken up in order: Milk, meat, wheat flour.

In the study of milk its individual components are carefully separated and examined; tests for preservatives of milk are made; consideration is given to various milk dishes and to the various foods derived from milk.

Meat is studied through the preparation of water extractions and of ammonium chloride extractions, and the subsequent physical and chemical tests to which these extractions are subjected. Careful attention is given to the behavior of these solutions at various definite degrees of heat.

Meats are cooked both by boiling and by roasting, careful note being made both of the outer and inner temperatures at all stages of the processes. The results of these methods of cooking under various conditions are noted; subsequently, water extracts of the cooked meats are made, and these in turn are submitted to physical and chemical examinations. Broths and drippings obtained through these boiling and roasting processes are likewise subjected to examination. Creatine, creatinine, xanthine, and hypoxanthine are isolated and studied.

From all these experiments conclusions regarding the proper cooking of meats and the preparation of meat foods are drawn.

Wheat flour is next taken up. The wheat kernel is studied microscopically. Such physical tests as the following are made on a great variety of flours:

Color tests, cohesion tests, doughing tests, gluten tests, and fermentation tests. The student's knowledge of the simple proteins is increased through a separation of gluten into its components, gliadin and glutenin.

Finally, the bread-making qualities of various flours are tested through the making of breads by both short and long processes, these breads being subsequently rigidly criticized and scored.

Following this detailed laboratory work, each student chooses a short individual problem which she plans, works out in the laboratory, writes up, and summarizes orally at the time of the semester examinations. During the six weeks in which the students are working on their problems, weekly meetings of the class are held in which each student reports upon work so far accomplished, articles read, etc. Meanwhile, each student has opportunity as needed for individual conferences with the class teacher.

Some of the problems attacked by the class this semester are the following:

- The relative economy of gas ovens.
- The economics of chocolate and cocoa beverages.
- Aluminum for cooking utensils.
- The preparation of carp for the table.
- Sugar in gelatin preparations.
- The bacterial and acid content of buttermilk and other milk preparations.
- Comparison of hard and soft flours in soft dough products.
- Influence of moisture on the bursting of starch grains.
- Comparison of baking powders.
- Animal v. vegetable fats in cooking.
- Influence of certain carbohydrates on growth.
- The nutritive value of condensed and of malted milks.

It has happened in the past that the problem begun in course 4 has been so productive of results that it has been possible to continue the research, eventually working out a master's thesis.

From the foregoing outline of work done in course 4, it will be seen readily that the course seeks to familiarize the student with the physical, chemical, and physiological characteristics of the organic food principles. This is accomplished through a selection from the large body of experiments in "physiological chemistry of those which, in themselves or in their applications, have a more or less direct bearing upon the principles governing the selection and preparation of food."

Further, the course aims, through the search for and study of research articles, to extend the student's acquaintance with original sources of information; and, through the working out of a short but original problem, to test the student's power of independent thought and investigation.

NUTRITION AND DIETETICS—TEACHERS COLLEGE.

Prof. Mary Swartz Rose furnishes the following statement regarding courses in nutrition in Teachers College, Columbia University:

Home economics deals with three great fields—food, clothing, and shelter. Good nutrition is indirectly dependent upon clothing and shelter, but is primarily concerned with the food supply. Every course in cooking, marketing, and food sanitation should contribute to knowledge of nutrition; every course in food chemistry, physiology, and bacteriology has a direct bearing on its problems. But a well-balanced program must include a course in which these scattered contributions are coordinated, reinforced and extended along both practical and scientific lines. The better the student's training in science, the more advanced this course may be. If the fundamental laws of cell life

and activity, the chemical constitution and properties of food materials, the physiology of human digestion and metabolism are well understood, and this knowledge is coupled with skill in the selection and preparation of food, the student is ready for training in scientific dietetics, that is, in the science dealing with the practical application of the general laws of nutrition to specific cases.

In Teachers College such a course is offered in the senior year to students who have already completed laboratory courses in biology, food chemistry, biological chemistry, and cooking. It is called Dietetics and includes lectures, recitations, and laboratory practice, but no sharp division is made between the different kinds of work. All go on in the same room, specially designed for the purpose, and accommodating 30 students at a time. Cooking tables of simple design are arranged in one-half of the space, and movable oak tables in the other half. The latter afford space for writing lectures and calculating dietaries, and setting out for inspection or consumption rations prepared at the cooking tables. Equipment is also provided for simple chemical experiments, and plenty of scales for weighing food materials.

Sherman's Chemistry of Food and Nutrition is used as a textbook in connection with the lectures, which deal with food in relation to digestion and metabolism in general, and with the specific problems of feeding in infancy, childhood, adult life, and old age. Emphasis is laid upon the nutrition requirements of the normal individual, pathological conditions being discussed only as they serve to throw light upon the underlying principles of nutrition and emphasize the importance of rational diet in the maintenance of health. Energy values of common food materials are studied on the basis of ordinary household measures and the 100-calorie unit. Practical school luncheons of definite fuel value and cost serve as an introduction to the more complex day's ration, which is made the unit for laboratory practice. Dietaries are prepared for individuals of various ages, and for typical family groups for specified sums of money. Rose's Laboratory Handbook for Dietetics provides detailed information in regard to the problems of dietary calculation and data upon food composition in convenient form. The aim throughout the course is to develop a scientific attitude toward the feeding problem, to impress the importance of accurate knowledge as a basis for sound judgment, and to give facility in selecting food-stuffs suitable in kind and amount to any given case without undue labor or expense.

Students interested in the problem of feeding large groups are offered, in addition to this course, one in dietary administration, in which dietaries for institutions of various kinds are studied, along with the practical problems of household organization, large quantity marketing, and business procedure.

For undergraduates who have not the scientific preparation for a technical course as dietetics two others are given; one, called "elementary food economics," having no science prerequisites; the other, called "food and nutrition," requiring for admission a thorough course in general chemistry, or a shorter course in general chemistry and food chemistry. Both courses consist of lectures with laboratory work. Elementary food economics requires only half the time of the other courses and presents very simply and broadly the nutritive requirements of the body. In the laboratory, dietaries for individuals of different requirements are the main feature, with special emphasis on economic phases of the subject, the purpose being to guide the housewife, nurse, or elementary teacher to a very practical knowledge of the fundamentals of good feeding.

The food and nutrition course is intermediate in character between dietetics and elementary food economics. More time is allotted to the study of digestion than in any of the other courses. Artificial digestion experiments, with prepa-

ration and identification of digestion products, being carried out pari passu with studies in the nutritive values and comparative cost of food materials. Calculations of the actual food consumption of the class for a day are made the starting point in dietary work, after which typical rations for typical conditions (of childhood, old age, emaciation, obesity, etc.) and for the family group are calculated and the food prepared and served in the laboratory. The general purpose is to give a clear conception of the body as a working machine; of food as the source of energy, building material, and body regulating substances; and of the way in which the materials are made available to the body.

Parallel with the course in dietetics, or following it, two courses are offered which extend the work in two directions. Nutrition and food economics, largely a lecture course with some supplemental laboratory practice, enables students to make a more intensive study of the principles of nutrition, and then consider in detail disorders due to disturbances and disorders of nutrition, special diets for such conditions being worked out in the laboratory. Laboratory methods in nutrition, a course of the same length as that of nutrition and food economics, affords opportunity for first-hand study of some of the common methods of nutrition investigation. A special chemical laboratory, suitably equipped, is used in connection with the dietetics laboratory. Diets are calculated according to estimated individual requirement, the food prepared, sampled, and eaten, and analysis made of urine and feces to determine coefficients of digestibility, nitrogen balance, and special points of interest in connection with the problem in hand. The accompanying lectures treat of typical methods of studying digestion and metabolism, the main aim of the course being to give the student more concrete notions of the basis upon which the science of nutrition rests and some criteria for judging the relative value of various kinds of experimental evidence.

For students wishing to specialize still further in nutrition, two still more advanced courses are offered; one, a seminar, in which the field is reviewed in the light of recent contributions to the subject; the other, a research course in which special problems are assigned to individual students for investigation.

The department believes that in a school of home economics emphasis is fittingly laid on the human aspects of nutrition, and that not only chemistry and biology, but also psychology, economics, and sociology, must contribute their quotas to elucidate the principles involved in satisfying man's requirements for maintenance, efficiency, and happiness in so far as they can be satisfied by feeding.

PROBLEM COURSE—MICHIGAN AGRICULTURAL COLLEGE.

Prof. Agnes Hunt furnishes the following statement:

A course in "household problems and demonstrations" has been offered to senior women in the home economics department of the Michigan Agricultural College as an elective in the spring term. It requires six hours of laboratory work per week, and the work comprises the collecting of material and working out of an original problem with a demonstration of the results at the close of the term.

The course is organized not so much with the idea of perfecting a problem, as the time is too short for that, but rather to acquaint the student with ways and means of collecting material for herself, both from reference-reading and experimental work. It has not been felt necessary to confine the work to this department alone, but has been found quite satisfactory to have the student

carry on the problem study in a laboratory in some other department where equipment was more convenient. For example, one problem on the causes of shrinkage in canning fruits and vegetables was carried on in the bacteriological laboratory, where incubators, sterilizers, etc., could be handled quite easily. Another problem on deterioration of different kinds of dry and moist yeasts was worked on in the same department to determine how rapidly CO₂ was given off under varying conditions of age, temperature, etc. One problem on testing of bread flours was worked out in the new laboratory especially opened for such work in the chemistry department.

We have found that in some cases a group of two or three students working out different phases of the same problem have been able to accomplish better results than one student undertaking the whole field.

Some of the problems taken up in the last three years have been:

- Effects upon freezing mixtures by using varying proportions of ice and salt.
- Utilization of cheaper cuts of meat.
- Comparison of various kinds of lunch baskets and lunches for same.
- Comparison of flour, cornstarch, and egg as thickening agents.
- A study of spring and winter wheat breads made from compressed yeast, yeast foam, and liquid yeast.
- A study to determine the difference between the fireless and pressure cookers regarding cost, economy of time and labor, and the best results of the cooked material with reference to flavor and texture.
- Utilization of dried fruits.
- Various ways of using cheese.

TECHNICAL COURSES IN COOKERY.

The organization of instruction in the technique of cookery is well illustrated by the following titles of courses in the department of foods and cookery at Teachers College, Columbia University, offered separate from other courses in organic and household chemistry, biological chemistry, and nutrition and food economics: Technology of cookery—aiming to develop technique by studying principles, processes, materials; elements of cookery—a survey course for those not specializing in cookery; elementary food preparation—general principles; experimental cookery—the purpose of which is to put cookery on a scientific basis and to systematize methods, to emphasize the quantitative aspects, comparative recipes, costs—an undergraduate and a graduate course; home cookery and table service—study, planning, and cooking of breakfasts, luncheons, dinners, suppers, also table service; demonstration cookery—practice in public lectures and demonstrations in cookery, also in preparation of articles for publication; demonstrations in advanced cookery—more complicated processes, variety of flavorings, seasonings; and materials; cookery for social workers—problems of family at margin of subsistence, for visiting housekeepers, settlement workers, and others; cookery for invalids; institutional cookery—large-quantity cooking for hospitals, lunch-rooms, restaurants; catering and general cookery—problems of tea rooms and catering establishments; and the history of cookery.

Section 5. COLLEGE COURSES IN TEXTILES AND CLOTHING.

Instruction in textiles and clothing is based on the principles of design. It involves social and economic considerations of importance. Certain aspects of the subject may be approached by the tests of the laboratory.

COURSES ON DRESS—OHIO STATE UNIVERSITY.

Miss Maud C. Hathaway furnishes the following statement:

The course in dress in Ohio State University covers a period of two years. One year's work is required of all first-year students in the home economics department. The rest of the work is elective at any time after the first year, and either a half year's or the whole year's work may be taken, as desired. Students taking first-year dress must also take a year of general design in the art department, two hours per week. Another half year of design is required before taking the advanced work in dress. Next semester we are to have for the first time a course in costume design, which we hope to have made a requirement of the dress course.

The first year's work consists of one laboratory period of two hours and a one-hour lecture period per week. In the laboratory cotton and linen are used in the making of undergarments, waists, and wash dresses. Hand and machine sewing are taught, and the use and adaptation of the commercial pattern. In the lectures the general subject of textiles is treated—the history and development of their manufacture; their chemical and physical properties. Finished fabrics are examined and studied for cost, quality, and use; economic and social problems related to the textile field are discussed; clothing budgets are prepared; and the care and the hygiene of clothing considered.

In the second year's work, laboratory periods of two hours each and a one-hour lecture period are required. In the first semester wool is the material used. Patterns are drafted and designed, and there is pattern modeling. Simple dresses are made. The lectures have thus far dealt largely with problems of design, but with the introduction of a course in costume design, the aim will be to try to relate the work in dress to as many important economic, social, and artistic problems as possible.

In the work of the fourth semester, silk dresses are made. Pattern modeling and designing are continued, and the use of the dress form introduced. In lectures an outline of the history of costume is given.

The general point of view in the instruction is that of the whole course in home economics—that is, it is an effort to make better home makers. Emphasis is laid particularly on those features of the clothing problem that will make the girl a wiser purchaser and consumer, both from the economic and the artistic standpoint. Her relation, as a home maker, to the social problems arising from this field of industrial work, as well as to something one may call, perhaps, the morality of dress, these are things we try to teach, rather than mere technical skill, though that is by no means neglected.

TEXTILE TESTING—TEACHERS COLLEGE.

The following statement regarding the work in textile testing as given in Teachers College, Columbia University, is furnished by the

instructor, Ellen Beers McGowan. (See also "Textiles," Woolman and McGowan, Macmillan.)

The aim of the course is twofold:

1. To bring to the attention of the students standards in textiles and market conditions as affecting the consumer, leading to the question of the necessity for textile legislation.

2. To increase the student's ability to judge materials and to purchase wisely.

This aim is best accomplished by grouping the students in as small sections as possible, to allow for individual work. Each student in the group may, if she wishes, investigate any line of material in which she is interested. The results of each investigation are discussed and shared by all; so that if the section is made up of 15 students, each one has at the end of the course the nuclei, at least, of 15 studies of textile materials.

The following are a few of the questions which suggest themselves as the motives for these studies:

In this line of dress goods, ranging from 30 cents to \$3 per yard, what can be considered the standard material? Is there a fixed relation of price to value? Can the consumer depend upon the statement of the retailer as to the content of the material?

What should one pay for a serviceable grade of linen toweling, table damask, etc.? What are the claims of mercerized material as a substitute for linen damask?

How much is actual weave and quality concealed by dressings—in table linen, for example?

To what extent is cotton used as a substitute for linen and made to resemble it?

What is the relation of weight to price and wearing quality in silks?

How can I increase the fastness of light-hued summer material to light and washing?

Materials selected for study may be: Dress and lining silks, waist and other flannels, mohairs, shepherd checks, novelty goods, serges, corded materials in wool and silk, linens, cotton material for sheetings, etc., upholstery goods, and many other lines of material.

Small pieces of material are bought, just sufficient for testing and dividing among the class as samples. The samples are mounted on cards, together with the results of the tests made, and other data.

The laboratory work consists of:

1. Microscopic study. The microscope appearance of the important fibers is learned and applied to the identification and determination of quality of the fibers in the materials to be studied.

2. Chemical testing. Elaborate tests requiring much apparatus are avoided. Simple practical tests, many of which can be performed at home, are emphasized. Identification tests for all principal fibers and differentiation tests for combinations of materials are made, together with tests for mercerization, dressing, and weighing. These tests are applied, quantitatively when possible, to the particular studies of material.

3. Laundry. A brief time is devoted to the proper treatment of fibers in the laundry and to the fastness of colors and removal of stains.

4. Dyeing. Nothing of a technical nature is attempted. The emphasis is placed on learning the best class of dyestuff for a given material, which involves a discussion of classes of dyes, properties, and methods of application. Practice is given in mixing colors. After preliminary dyeing of skeins, the students apply their knowledge to the dyeing of cheesecloth for color effects, to tied work, to dyeing feathers, scarfs, ribbons, and dress materials.

COURSES IN TEXTILES AND CLOTHING—UNIVERSITY OF WISCONSIN.

The department of home economics furnishes the following statement regarding its courses in clothing and textiles:

Hand and machine sewing.—Given as a teacher's course in the summer school. Required as a prerequisite without credit for home economics 11 (next below). In either case it does not count in degrees toward graduation. It includes the making of all the fundamental stitches: Knitting, crocheting, darning, patching, and simple embroidery. The use of the sewing machine and its attachments. Fancy stitches done on the sewing machine. Practice in the drafting, cutting, and making of lingerie for ladies and children: Chemise, nightgown, drawers, corset cover, combination drawers and corset cover, silk and cotton petticoats, guimpes, shirt waists, flannel underwear, bathing suits, children's underwear.

Manufacture and selection of clothing.—Costume designing, economic problems of construction of clothing in the home, as compared to the commercial product, hygienic factors involved in clothing, and economic and sociological phases of the clothing industry.

Advanced dressmaking.—Laboratory work includes costumes: The drafting, cutting, and making of cotton dresses, woolen tailored suits (Peter Thompson style), fancy silk and crêpe dresses, tailored linen suits.

Millinery.—Aims to fit students for teaching millinery in the high schools; designing and drafting of patterns for hats; construction of frames; buckram covering; willow and wire covering, and finishing the hat with velvet, straws, etc.; making and placing of trimming; making of ribbons, flowers, and accessories of dress; renovating of millinery; children's millinery; baby bonnets; fur sewing, the making of muffs and collarettes.

Textiles.—Two lectures, three 2-hour laboratory periods per week, for one of which no credit is allowed.

The lectures cover, first, the study of the textile art in the early stages of civilization, illustrated by material gathered together in the historical museum; the progress of the industry through the period of the domestic system in Europe and America; the period of the industrial revolution, the study of expansion in recent years.

Second. The culture of the raw material of the textile fibers, the various machine processes necessary to the production of cloth, the bleaching, dyeing, printing, and finishing of cloth.

Third. The study of specialized parts of the industry, as the knitting industry, lace making, tapestry weaving, rug making, both domestic and foreign.

Fourth. Design and color in textile materials from the artistic standpoint; the possibility of securing an adequate label for purity in textile materials; the work of the consumers' league.

The laboratory work is devoted to learning the stitches and seams used in plain sewing; the parts, and the working of the sewing machine; the drafting and making of a shirt waist. The laboratory work includes:

First. Hand-loom weaving, from the processes of setting up a loom, making a warp, threading the loom, to the weaving of a rug and a table runner or bag.

Second. The study of the macroscopic characteristics of the principal textile fibers, their microscopic appearance, their physical and chemical properties and chemical composition; the problems of laundering, such as bleaching, shrinking, bluing, removal of stains, effect of detergents on the tensile strength.

Third. Dyes and dyeing.

Fourth. The study of weaves, qualities, prices and uses of different kinds of cloth; fluctuations in style.

Fifth. The analysis of cloth, macroscopic, chemical, strength tests, so as to enable the student to evaluate the quality and to detect adulterations.

General chemistry and household chemistry are required as prerequisites to the course.

COURSES IN TEXTILES, SEWING, DRESSMAKING—WASHINGTON STATE COLLEGE.

Prof. Agnes Houston Craig, of the Washington State College, furnishes the facts for the following statement:

The courses in textiles, sewing, and dressmaking have been planned so that students taking up this phase of home economics will approach their work in clothing and house furnishings from the viewpoint of individual income or of the family budget and its relation to general economic conditions; that they may appreciate the variety of interests involved in the work, giving each its proper valuation; and that they may attain to economic, technical, and artistic efficiency as regards clothing and household use of textiles.

A SURVEY COURSE IN TEXTILES.

A general course in textiles should furnish a historic background of economic and artistic interest, so that the student may appreciate the social importance of the subject and intelligently relate past achievements with progress in all parts of the textile field. Either prerequisite or parallel to advanced work, there should be definite study in economics, translated into terms of domestic consumption, in sociology, and in industrial history.

I. HISTORICAL SURVEY. THE PART TEXTILE DEVELOPMENT HAS PLAYED IN CIVILIZATION.

1. Industrial Development Based upon Fundamental Needs: (a) Food; (b) shelter; (c) clothing.

2. Progress Based on Men's Genius for Invention: (a) Chronological development of textile machinery; (b) municipal development based on textile industry; (c) industrial revolution involving textile industries; (d) progressive development of textile manufactories—(1) family system; (2) guild system; (3) domestic system; (4) factory system.

3. Relation of Textile Development to Legislation: (a) Factory laws and legislation; (b) tariff regulation and legislation; (c) wage problems; (d) employment of women; (e) child labor laws; (f) social betterment movement.

4. Historical Significance of Fabrics as a Medium for Art Expression: (a) Oriental fabrics, rugs, and carpets; (b) tapestries; (c) embroideries and ecclesiastical needlework; (d) historic style traced through textile materials; (e) color, development of the dyer's art; (f) design and texture.

II. ECONOMIC INTERESTS.

1. Develop Economic Deductions from Historic Survey.

2. Textile Interests as They are Related to Agricultural Development: (a) Geographical distribution of raw materials; (b) transportation; (c) tariff.

3. Present Economic Status of Textile Industry: (a) Rank based on extent of employment and in amount paid in wages; (b) its rank in service next to food, steel, and iron.

4. Present Manufacturing Conditions Related to: (a) Cotton; (b) wool; (c) silk; (d) flax, hemp, and jute; (e) finished products—(1) ready-to-wear clothing and accessories; (2) household furnishing and equipment.

4. Effect of Constant Change in Fashions: (a) Viewpoint of commercial world; (b) viewpoint of consumer.

5. Economic Administration: (a) Relation of the family budget to the planning, purchasing, and construction of essentials in clothing and textile furnishings; (b) labor-saving devices and equipment related to textiles; (c) problems of public health and sanitation—(1) Manufactories—(a) sweatshops, etc.; (b) factory and workroom inspection; (c) child labor; (2) family interests—(a) textiles in their relation to personal hygiene; (b) textile furnishings and household sanitation; (c) laundry problems—(1) public laundry versus private enterprise; (2) hygienic advantages of home processes; (d) laundry economy from consumers' viewpoint—(1) relation of cost to budgets; (2) need and means of regulation of public laundries; (3) economy of the properly equipped home laundry and public laundries—(aa) comparative cost of operation; (bb) comparative results in service of fabrics.

III.—TEXTILE STUDY IS DISTINCTLY ECONOMIC IN VALUE AND AS SUCH SHOULD BE
ATTACKED FROM TWO VIEWPOINTS.

1. Scientific: (a) Microscopic study—(1) properties and characteristics based on structure—(a) absorbability; (b) conductivity; (c) hygroscopicity; (d) tensility; (e) elasticity; (f) ductility; (2) structure as a means of identification; (3) final test for determining mixtures and the presence of adulterants; (b) chemical—(1) action of acids and alkalis on different fibers; (2) tests for identification of fibers; (3) principles of dyeing; (4) development of laundry theory based on—(a) structure of fibers; (b) reaction of acids and alkalis on fibers; (c) removal of stains; (d) fastness of color to light, cleansing processes, etc., wet and dry.

2. Artistic: (a) The expression of art principles as developed in textile design and harmonious color; texture; (b) textiles as a medium of art expression—(1) in house furnishing; (2) in clothing.

3. Technique: (a) Study of important processes of manufacture; (b) standard weaves and their classification into materials; (c) machinery equipment for home and laboratory use—(1) laundry equipment; (2) sewing machines, dress forms, etc.; (d) laundering, application of theory; (e) dry cleaning, application of theory.

IV. APPLICATION TO PRESENT SOCIAL CONDITIONS.

1. Through reduction of cost of living: (a) By exercise of scientific and artistic judgment in selection.

2. Through raising standard of living: (a) Wider economic independence; (b) happiness based on form of appreciation.

THE COURSE IN PLAIN SEWING.

The course in plain sewing, while giving necessary technique, is planned to direct ideas as regards fundamental facts of right living, stressing such subjects as economic consumption, art appreciation, hygiene and health conditions, and technical proficiency in relation to economic welfare. The same predominance of the idea element is evident in the course in dressmaking offered at Washington State College, which is outlined below.

COURSE IN DRESSMAKING.

I. HISTORIC TYPES RELATED TO MODERN STYLES.

II. ECONOMIC INTERESTS.

1. Ready-to-wear dresses versus homemade.
2. Relation of clothing interests to personal and family budget.
3. Health conditions.
4. Convenience and bodily freedom.
5. Service and durability.

BUREAU OF EDUCATION

BULLETIN, 1914, NO. 38 PLATE 6



A. SERVING TABLE, CAFETERIA IN HOME ECONOMICS BUILDING AT CORNELL UNIVERSITY, ITHACA, N. Y.



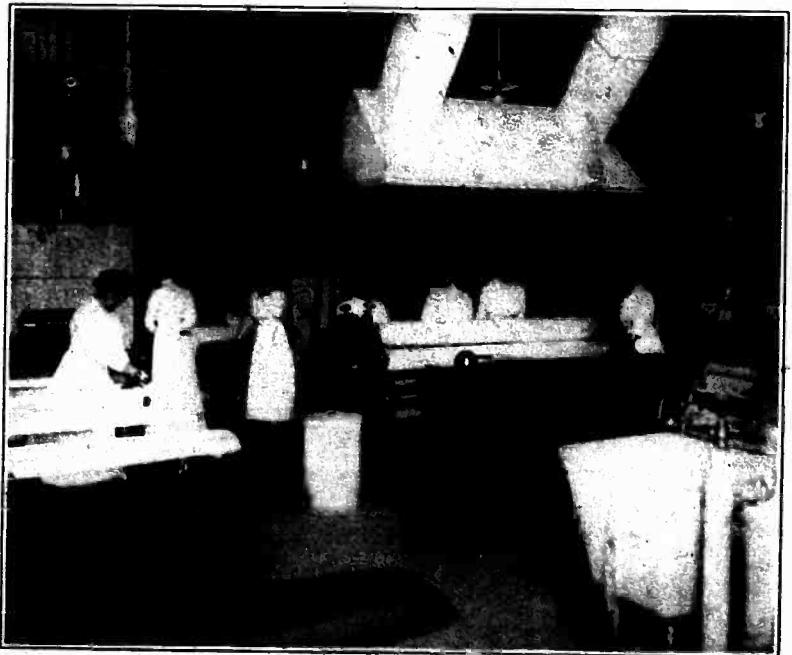
B. SEWING LABORATORY, HOME ECONOMICS BUILDING, IOWA STATE COLLEGE, AMES, IOWA.

BUREAU OF EDUCATION

BULLETIN, 1914, NO. 38 PLATE 7



A. DOMESTIC SCIENCE CLASS, TRAINING SCHOOL, UNIVERSITY OF UTAH, SALT LAKE CITY.



B. INSTITUTION LAUNDRY LABORATORY, TEACHERS COLLEGE, COLUMBIA UNIVERSITY, NEW YORK, N. Y.

OUTLINES OF INDIVIDUAL COLLEGE COURSES.

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III. AESTHETIC PROBLEMS.

1. Standards of bodily proportions: (a) Ideal measurements, (b) variations and corrective methods.
2. Relation of art principles to dress: (a) Proportion through line, dark and light, etc., (b) harmony in color—(1) Contrasting harmonies, (2) analogous harmonies. (c) Type of human coloring—(1) Relation of color to type, (2) color tests demonstrating reactions on human coloring—(a) Complexion, (b) hair, (c) eyes.

IV. CLASSIFICATION OF TYPES, CORRECT USE OF EACH, EXAMPLES OF APPROPRIATE MATERIALS.

V. TECHNICAL CHARACTERISTICS OF EACH TYPE.

VI. SELECTION OF DESIGN.

1. Suitable to type.
2. Suitable to income.
3. Suitable to service.

VII. SELECTION OF MATERIAL.

1. Suitable to type and design.
2. Suitable to income.
3. Becomfitness—(a) Texture; (b) pattern; (c) color.
4. Health considerations—(a) Age; (b) climatic condition; (c) constitutional requirements; (d) occupation.

VIII. TECHNIQUE.

1. Commercial patterns used as a basis: (a) Correct reading and adjustments of patterns; (b) free-hand alterations and adaptation of patterns; (c) correct and economical placing on goods depending—(1) width, right and wrong; (2) pattern, nap, checks, stripes, up and down; (d) cutting.

2. Modeling on the form: (a) Building design in paper or practice material so as to work out proportions, good line, effects in decoration; (b) union of parts previous to first fitting; (c) means of technical adjustment and alteration; (d) obtaining effects in placing of decoration.

3. Processes: (a) Seaming appropriate to type and material; (b) finishing—(1) Openings; (2) edges; (3) adjustments and means of closing; (4) application of trimmings and decorations; (c) some tasteful form of handmade trimming should be made—(1) Practice in applied design; (2) basis for comparison between cost of homemade and store trimmings; (3) puts both types at service of consumer.

The selection of actual types of dresses to be made must be determined by the instructor in consultation with her class. It is unwise to encourage the making of clothing that will be inappropriate to the circumstances and financial status of the individual. Each girl should be taught to dress tastefully and thus suitably to the environment. In most classes there are enough variations in such respects to give the entire class suggestion over a wide field. Each student should be required to work out the highest possible efficiency in her clothing at the lowest possible expenditure—(1) of money in purchase of material; (2) of time in shopping and technique; (3) of energy through adaptability to health conditions, reasonable time spent on technique, (4) wearing quality and care of material.

The results should give the maximum aesthetic satisfaction to the wearer. Such a course in dressmaking should include as widely varying types as possible. There is ample opportunity to put into effective practice the fundamental work in textile study.

TECHNICAL COURSES IN SEWING AND DRESSMAKING.

The organization of technical instruction in the sewing arts is well illustrated by the following titles of courses offered in Simmons College, Boston: Elementary sewing—plain hand and machine sewing; plain sewing—including drafting, cutting, plain hand and machine sewing for intending teachers; applied design—the design and color arrangements for household furnishings and garments; sewing—a condensed course, for students in advanced standing, in drafting, cutting, hand and machine work, textiles, and discussion of methods; millinery; dressmaking—drafting, fitting, draping, and finishing gowns; costume design—history of costume, proportions of human figure, and applications of principles of design to the gown and to the hat; industrial sewing—garment construction, power-machine stitching; and sewing for elementary and industrial schools; plain sewing—extensive practice in drafting, cutting, hand and machine work with attention to problems of elementary and secondary schools; textiles—fibers, processes of manufacture, identification and economic use of fabrics; textiles for students in salesmanship—colors, designs, qualities, textures, costs, durability.

Section 6. COLLEGE COURSES ON THE HOUSE—PLANS, DECORATION, SANITATION.

RATIONAL HOUSE PLANNING AND HOUSEHOLD DECORATION—CORNELL UNIVERSITY.

Prof. Helen Binkerd Young, architect and assistant professor of home economics in Cornell University, contributes the following statement:

Housing is one of the three fundamental divisions of home economics. In order that rational standards of housing may be developed, it is necessary to base the work on a study of the house plan and house structure. The time has come when we must realize that forceful and direct arrangements of floor plan do of themselves create conditions favorable to simple housework and to effective decoration; while crowded, rambling, or indirect arrangements create forms of waste that no amount of added equipment can cancel. Complete home economy can obtain only after the first great economy, that of the plan, is established. To accept dwellings of the day as fixed conditions is to limit the full demonstration of home economics. The organization of the house plan must be made to fit the organization of the housework.

Equally important is the equipping of the home with useful furniture and purposeful decoration. Every interior should be considered as a setting that may rest, delight, or uplift with its atmosphere. A room that yields nothing to

its occupants is at least responsible for the sin of omission. The suggestive effect of various colors and forms on children as well as on adults is too valuable an educational force to be ignored. We need all the inspiration that a virile environment can diffuse. Daily life in such a home at length develops that personal poise which attends steady purpose and which becomes a staff to others as well as to oneself.

Such is the viewpoint pervading the course in house planning and household decoration given in the department of home economics at Cornell University. The course as at present scheduled covers three hours of credit a term, and runs throughout the junior year. The first semester is devoted to house planning and the second semester to decoration. Hereafter a two-hour course in design will be required as a prerequisite.

The course in house planning consists of two lecture periods of 50 minutes each and one laboratory period of 2½ hours. The lecture work presents to the students such discussions as, the relation of the house plan to homemaking, to the servant problem, and to the cost of living; economic versus cheap standards of building; developing house and grounds as a unit; exterior color schemes and building materials; and such phases of heating, plumbing, lighting, and general construction as effect one's standards of sound housing. It is the particular aim of this course to take a progressive view of housing, by discussing the use of new building materials, simpler plumbing methods, new floorings, and the effect such changes would have on the design, the upkeep, and the total economy of property. The bulk of the work is, however, a discussion of planning. A collection of lantern slides is used to illustrate various types of plans and exteriors both good and poor. Every plan is analyzed on the score of size, shape, arrangement, design, economy, and originality of treatment. Exterior views are analyzed for general proportion, method of roofing, window treatment, and general design of structural features. An appreciation of domestic architecture is thus developed.

The laboratory work in house planning consists of one copied and three original problems. A typical program of the three original problems includes:

1. The planning of a one-floor arrangement at a scale of $\frac{1}{8}$ inch to 1 foot. (Bungalow, apartment, or one floor of a two-family house.)
2. The planning of a two-floor arrangement at same scale. (A suburban house for a given site and for a family of given size, or a farmhouse.)
3. An economic kitchen plan. (This is the most detailed study of the term.)

The course in household decoration (three-hour course) consists of one lecture period of 50 minutes and two laboratory periods of 2½ hours each.

The work in decoration is fundamentally related to the work in house planning. By designing rooms of agreeable proportions and by arranging windows, doors, fireplaces, and other structural features with relation to lines of composition on the plan so that they create or terminate vistas, there at once results an interior that is well-proportioned, effective, and decorative. A refined color scheme and serviceable furnishings will complete the requirements.

It is the particular aim of this course to train the individual to select and appreciate refined colors and appropriate furnishings.

An understanding of the principles of design and utility form the groundwork of this training. Definite interior problems in color, line, form, and arrangement are worked out by the students in the laboratory periods; these drawings are then hung and competitively judged. Throughout the work emphasis is laid on the elimination of the useless, and the economic value of a right environment.

Plans are now being made to expand both parts of this work in housing by continuing each part of the work throughout the entire year; an attempt will

be made to keep problems in planning and in decoration running parallel to each other.

In conclusion, whatever compromises in housing the present conditions may temporarily impose on us, home economics should uphold the ultimate standard of a simple house, with garden attached, for every family in the land.

COURSE ON THE HOUSE—TULANE UNIVERSITY.

The department of home economics at the H. Sophie Newcomb College, Tulane University, New Orleans, outlines a four years' course of study on the house as follows:

A unit of free-hand drawing is prerequisite. The first year's work includes a general study of the house with textbook and supplementary lectures by specialists, one hour a week given by the domestic science department. The school of art of the university is to offer, parallel to this, four hours a week of related art work on the house, which is continued through the sophomore year, looking to the development of good taste as applied to the home, half of the time given to the study of design and half to form and color. The art principles are to be carried out in studio work in the construction of plaids, door panels, tiles, book-cover designs, applications to textiles, embroidery, and other household problems.

In the junior year a study of housing conditions in the city with field work and lectures is to be made in connection with the household management course in domestic science, and four hours a week of studio work in the school of art is devoted to house problems, on arrangement of rooms for convenience, harmony, and color, color schemes, lighting, woodwork, walls, floors, draperies, furniture design, furnishings, pictures, and household ornament. This art work is carried on through the senior year. An interesting part of the plan is the use of a building in which the art can be materialized in whole or part, working with such special problems as a model kitchenette, college infirmary, and social settlement, and the remodeling of old tenements.

COURSE IN HOUSE SANITATION—UNIVERSITY OF CHICAGO.

Prof. Marion Talbot, professor of household administration in the University of Chicago, contributes the following statement:

The course in house sanitation at the University of Chicago is offered to students who have had two years of college training. There are no prerequisite courses, and the work is given as a free elective, except in the case of students specializing in home economics, for whom it is specially recommended. Four hours a week for 12 weeks is the time devoted to the course. These facts suggest the reasons for the general point of view of the course and for the methods followed. The work is considered primarily in the light of its value in general training, and only secondary importance is attached to its technical aspects. The following aims are kept definitely in view, viz: acquisition of interesting and useful information, power of observation, sense of discrimination between essentials and nonessentials, intellectual freedom, and appreciation of scientific, economic, and social values. The method used involves the use of a textbook (Talbot's House Sanitation) with wide reference reading from standard works (especially Rosenau's Preventive Medicine and Hygiene) and periodical literature, lectures embodying new material not easily available for students, quizzes, reports on special reading (each student being responsible for articles on the medical, economic, social, municipal, legal, engineering, or bacteriological aspects

of sanitation in the current numbers of some one special magazine), the critical analysis of popular and often pseudoscientific articles, reports on observed instances of insanitary practices, the solution of practical problems in sanitation, and a brief review of the leading contributions of scientific men to sanitary theory. Graduate students are given in addition a subject for special investigation and report. A good deal of emphasis is placed on the historical aspects of such topics as changes in the theories of ventilation and plumbing with the aim of showing the need of intellectual open-mindedness. Popular, hygienic ideas and practices are shown to be erroneous or given a new justification on the basis of freshly discovered truths. The harmfulness of night air may be cited as an instance of one group and the value of sunshine as an instance of the other.

The ordinary subject matter of house sanitation lends itself very readily to treatment by this method. The site of the house, construction and care of the cellar, ventilation, heating, lighting, plumbing, sewage disposal, and furnishing are topics which come within the range of ordinary experience, and thus are peculiarly fruitful for educational discipline and training, especially when freed from their stereotyped setting.

The emphasis placed by the new public health on the person rather than on the environment as a factor in sanitation serves also to enrich the work. The next step is a natural one to take. The house should be considered not merely as a place where disease or ill health is controlled, but—what is of much greater importance—where the foundations of sound health are laid and vigor and vitality and resistance to disease are maintained. This larger view of the scope of house sanitation is emphasized at every possible point. It is even pointed out that standards of cleanliness may be enforced at such cost to comfort and convenience and happiness as to lower the power of the individual to resist disease when he is exposed to it. Every possible contribution which the house can make toward securing greater vigor on the part of the members of the household is considered a legitimate phase of sanitation.

Section 7. COLLEGE COURSES ON HOUSEHOLD MANAGEMENT AND RELATED SUBJECTS.

COURSE IN ELEMENTARY HOME ECONOMICS—UNIVERSITY OF KANSAS.

Mrs. Edna Day Hyde, late of the University of Kansas, established at the University of Missouri a few years ago an introductory "survey course in home economics" which introduced new students to varied problems in the different divisions of the field. A series of books covering the different divisions was used as texts.¹

In the University of Kansas Mrs. Hyde developed an elementary course including five hours of work a week for freshmen and sophomores, which was divided in two parts, which might be taken together or separately. The first part of the course devoted three hours to preparation of foods; the second part, called elementary home economics, treated of the following topics:

1. History of home—Primitive, Greek and Roman, middle ages, colonial, modern. (Emphasis on division of labor between men and women with

¹General Survey Course in Home Economics for College Students. Edna D. Day. Proc. Tenth Lake Placid Conf. on Home Economics, 1908, 39 ff.

causes for changes.) Aim: (a) Cultural. Show relation of home to social and economic movements; connect with history and other college subjects. (b) Practical. Help girls to orient selves by showing: Women are naturally workers, cause of present leisure, fact and cause of late marriages, need of vocational training for girls.

2. Vocations open to women. Principles of selection.
3. Modern theories of what should be the work of married women.
4. Home making a profession. Classified list of responsibilities of modern home makers.
5. Study of student bed room. Chosen as type, because of student's present responsibility for bed room and because of opportunity to show home problems as economic (time, energy, and money), sanitary, artistic, human.
6. Other problems: Each student studies and writes paper on some other individually-chosen home problem.
7. Division of income. Student's income—estimate at first of year of expenses per month; monthly classified accounts handed in. Family income; brief discussion in class; may be one of special problems.

SURVEY COURSE IN HOME ECONOMICS—CORNELL UNIVERSITY.

The following outline describes a general or survey course in home economics which is offered to arts students in Cornell University who are not specializing in home economics. Three instructors cooperate in the instruction, which comprises three topics—food and dietetics, household management, and sanitation.

This is a six-hour course, with four lectures and two laboratory periods, and extends through a half year. The course is not designed for teachers, but for those who wish to understand the principles of housekeeping. Women elect the course which embraces foods, household management, and sanitation, with laboratory work; the men elect a three-hour course consisting of two lectures in foods and one food laboratory. A part of the lectures are given to men and women together; the laboratory work is separate.

Food and dietetics occupies two lecture periods of 50 minutes each and two laboratory periods of $2\frac{1}{2}$ hours each throughout the second semester. The aim in this course is first to give fundamental principles of food selection and preparation, of household sanitation and household management, and to emphasize the opportunity of home experiments, so that the student may approach her home problems intelligently and enthusiastically. Only from this point of view can so short a course give much of value. Problems in dietetics, from infancy to old age, are particularly emphasized; so that the student may know how to select her own food, how to choose and select for others, and furthermore that she may contribute her intelligent interest in this subject which calls urgently for an enlightened public opinion.

Household management is taught in the food laboratory by actual practice and theoretically by means of household and personal

accounting. The division of the family income; its apportionment for food, shelter, and clothing; the laws relating to family life; household, personal, and real property, and its care; the purchase, care, and preparation of food and clothing, and its preservation; the methods of conducting household work with a saving of strength, time, and money; labor-saving equipment with time studies; the economic position of woman as the home maker and the value of her household work as a business.

Household sanitation is to give a general view of the connection between sanitation and the health of the family, and to show the sources for information on questions of sanitation. Each student may, if she desires, make special application to city or to country problems, thus making the work more personal. The hygiene of rest, exercise, and general care of the health is considered.

COURSE IN HOME ECONOMICS—UNIVERSITY OF VERMONT.

Prof. Bertha M. Terrill furnishes the following statement:

The course in home economics at the University of Vermont aims to give emphasis to the importance of woman's work in administering the affairs of a household as a large factor in beneficial economic activity. It seeks to give a well-laid foundation, through some study of the historic development of family life in its social and economic aspects, for a rational consideration of its present status and a reasonable forecast of its best future development.

Effort is made to help the student to differentiate sharply between a haphazard existence without conscious purpose or direction, and a life intelligently controlled by a consistent standard of life. Detailed study of different phases of the profession is carried on with actual experience in managing and planning under local conditions so far as this can be arranged.

This course is offered to senior students after several prerequisite courses in foods, clothing, and shelter.

1. Economic status of the home.
 - a. Production and consumption as divisions of political economy.
 - b. The home as the former center of productive activity.
 - c. Its present influence upon consumption.
 - d. Economic function of woman as a director of consumption.
 - e. Relation of education to wise production and consumption.
 - f. Professional importance of home making.
2. Sociological aspects of the home.
 - a. Historical survey of the development of family life.
 - b. Present status.
 - c. Forecast for future homes and family life.
 - d. Ethical and moral importance of standards in home making.
3. Standards of living.
 - a. Meaning and use of budgets.
 - b. Study and comparison of actual budgets.
 - c. Standardized budgets with reference to shelter, operating expenses, food, clothing, and higher life.
 - d. Study of each division in detail in light of local conditions.
 - e. At least one budget of given income for actual or suppositional family under local conditions.

4. Household accounts.
 - a. Value in general.
 - b. Possible methods.
 - c. Comparative value and desirability of each.
5. Use of the bank.
 - a. Entries, checks, indorsements of checks, vouchers, balancing, and other common details for understanding the use of an account.
6. Domestic service.

Using Prof. Lucy Salmon's *Domestic Service* as the basis of study, the class considers the various phases of this problem of the home.

TEACHERS COLLEGE, COLUMBIA UNIVERSITY.

Technical courses in household management.—The division of subject matter in household management has been partially indicated by the curricula elsewhere (pp. 9, 18). A list of courses offered in this field at a single institution, Teachers College, will further illustrate the organization of technical instruction in management:

Housewifery—the kind of house service needed, and the daily routine, discussions and laboratory work; domestic laundry—for teacher or house manager, principles and processes; institution laundering—discussions and practice with power machinery; dietary administration—institution kitchens, dietaries for restaurants, hospitals, etc.; household economics—household budgets and control of family and personal life through economic relations, elementary and two graduate courses; household accounts; marketing—food supplies, buying, selection, tests, storage; household management—problems of the housewife in terms of scientific principles; housekeeping problems and practice; house structure; institutional organization and management—systems of administration, equipping, and upkeep, business direction; institution buying and dietaries; institution administration; institution accounts and office management; problems in household and institution administration—graduate course. Teachers College has recently issued a bulletin outlining the development of the management field.¹

The course in home nursing.—Miss Isabel M. Stewart, of the department of nursing and health, Teachers College, furnishes the following statements, first as to methods of teaching home nursing and first aid, and second as to the course in home nursing:

I. Courses in home nursing and first aid are now being given in high schools in connection with physiology and hygiene, and domestic science; in normal schools and colleges in connection with domestic science and physical education; and also by separate agencies, night schools, Christian associations, industrial centers, settlements, Red Cross societies, boy scouts, camp fire girls, mothers' clubs, and other organizations. In a subject of such vital importance to

¹Teachers College Bulletin. Opportunities in Household and Institutional Administration, School of Practical Arts, Teachers College, Columbia University, New York City, 1913.

life and health, every aspect of its teaching should have very serious consideration. It has been abundantly proven that "ill-chosen subject matter, poor teaching, and lack of sufficient foundation may lead to assumptions and consequences that are exceedingly dangerous. On the other hand, absolute ignorance of or popular fallacies about the care of sick people are even more fruitful of bad results. On the whole, it seems better to risk the evils incident to faulty instruction, rather than teach nothing at all."

The general aim of such courses is to enable women to care for themselves and others in such a way as to prevent illness, and maintain a high standard of health in homes, to care for slight illnesses where the services of a professional nurse are not required, and to enable everyone to act sensibly and intelligently in all accidents and emergencies that menace life. It is not any part of the aim to train women so that they can render cheap nursing service as attendants or so that they may feel competent to undertake the care and treatment of really sick people in the home. In teaching the various elementary nursing procedures, the purpose is not at all to develop a high degree of skill. This is not possible in a short time, and is not advisable. It is much more important to give pupils the right attitude toward disease, to make them appreciate the duty of prevention, the importance of the early recognition of disease, the bad economy of poor care, to create a respect for expert nursing and medical treatment, and a right conception of the amateur's place in the prevention rather than the actual care of sickness.

Home nursing in general should include the following topics:

1. Causes of diseases in the home; meaning of sanitary environment; importance of building up vital resistance.
2. Small deviations from health; the hygiene of illness in surroundings and care.
3. How to make people comfortable in bed and attend to their daily needs.
4. Symptoms of common diseases; importance of observation and early reporting; precautions regarding infectious diseases; importance of expert advice and treatment.
5. Methods of treatment which may be safely used for minor complaints or emergencies.
6. The care of children.

In elementary schools in England, in the educational work of the St. Johns Ambulance Association and the American Red Cross, it is a rule that a physician or nurse must be employed as teacher for home nursing and first aid. In American schools the teacher of biology, hygiene, physical education, or domestic science, with little or no special training or experience, has usually been called upon to give the instruction in these subjects. The specialist is urgently needed here, if such instruction is to be safely and skillfully given. It is unfair to demand of any untrained person that she should undertake responsibilities for which she is not prepared. The importance of providing a physician or nurse as instructor arises from the skill and knowledge gained by wide experience and study, the interest and importance which he or she can lend to the subject, the confidence which is aroused in the student, the thorough acquaintance with the latest professional knowledge which such a person would be much more likely to possess. Nurses are rapidly coming into the schools as school nurses, and school physicians are being appointed in an increasing number of communities. Should it not properly be made part of the school nurse's duty to undertake such instruction? The services of nurses and physicians in a community may often be secured for voluntary talks or through part time employment. The opinion of the department of nursing and health is that the question of who shall give instruction and what shall be

given is a matter of very great importance, in regard to which leaders in domestic science education must take a definite stand.

A very simple equipment for teaching home nursing can be obtained for \$35 to \$50, giving such a course as is outlined below (II). Such a course should be given in simplified form for high-school girls. In high schools first aid and sanitation might be taught to boys and girls together. In colleges such a course should be preceded by physiology, hygiene, and bacteriology, if these subjects are given. In normal schools home nursing should be taught for general information, but not to prepare teachers of home nursing. The reason for this is that it takes much more experience and training than could possibly be given in any short theoretical course to enable anyone to teach the subject satisfactorily. A laboratory is a necessary means of instruction, or at least a room for setting up beds and giving demonstrations; the room should have gas and water supply. Visits to a hospital, an almshouse, an orphanage, or a day nursery might form part of the observation work, but little can be seen of the actual care of sick or helpless people in this way.

II. The course in elementary nursing and first aid as given in Teachers College is a half-year course, three hours a week of lectures, demonstrations, and laboratory practice. It treats the following subjects:

Brief historical sketch of the conceptions of disease and care of the sick in ancient and modern times; The human body in its fight against disease; prevention of disease in the home; general provision for care of illness in and out of the home; early evidences of disease; observation and recording of symptoms; how to make a sick or injured person comfortable; bathing; food for the sick and convalescent. The treatment of disease: Use and abuse of medicines; some common remedies in simple inflammatory conditions; care of slight infectious ailments in the home; special points in the home care of sick children, the aged, chronics, and convalescents; emergency treatment of injuries to bony and muscular systems; injuries of skin and underlying tissues; injuries involving circulatory systems; injuries involving the nervous system; bandaging; emergency outfitts.

HOUSEHOLD ECONOMICS JOURNALISM FOR WOMEN—IOWA STATE COLLEGE.

Prof. F. W. Beckman, professor of journalism in the Iowa State College, furnishes the following outline of two courses offered in journalism for women. These courses, Prof. Beckman states, were given in response to a request by the women students for an opportunity to fit themselves for journalistic work in home economics similar to journalistic work in agriculture, which had been provided the young men for a number of years. The college was also led to establish the courses because of its belief in their value. To be able to write in the journalistic or news style and to have a well-developed news sense are things valuable for themselves. Journalistic training for home-economics students would open a way to their becoming contributors to newspapers and magazines, thus increasing their income and opening a new field of useful service. The domestic science teacher who goes into a community and neglects to use the press as one means of education, was, it was felt, limiting her usefulness and her possibilities. So, too, the dietitian or social worker, and even

the home worker, would find the newspapers a valuable ally. Again, training in home-economics journalism was deemed important because the newspapers and magazines need staff writers who are well trained in the science of home economics. The one qualification of the woman writer on the home in the newspaper or magazine has been a breezy and entertaining style rather than knowledge of the subject; and women's departments have therefore often contained vain and worthless stuff. The editors are ready for trained help in this field, it was felt, and so for the sake of the students, for progress in home science, and for better journalism it was felt that a duty rested upon the home economics department in such institutions as the State college to give young women some equipment in journalistic writing and some direction in this important field of labor.

Instruction in Journalism at Iowa State College does not lead to a degree in Journalism. The whole purpose of the courses is to give young women who are first trained in home economics some skill in writing upon home economics in the journalistic style. Consequently the courses in Journalism are in a sense incidental. Two different courses are now offered: Beginning Journalism for women and Journalism practice for women. Each is a two-hour credit course, and the former is prerequisite to the latter. Young women who desire some further training may get it in a second year in connection with the actual editing and publishing of the Iowa Agriculturist, which adds women writers to its staff to conduct a department for farm women. For the staff of this publication two courses are offered in newspaper management, one hour per semester.

The course in beginning journalism for women deals with the fundamentals of journalistic writing. Because of the importance of the news sense and the news style, these subjects are given emphasis throughout the semester with practice in news gathering and news writing and the application of the principles involved in informational writing on home-economics topics.

In the first half of the first semester, the lectures develop the importance of news sense and news style in writing, make clear what is news and give standards of news values, point out the various sources of news in different fields and good news-gathering methods, set up the principles that govern the writing of the news story, describe the different types of news stories and how they are written, emphasize human interest and its value, and explain the news writer's qualifications and his viewpoint. In the second half, fewer lectures are delivered, because more time is given to practice. They deal with the application of news writing to home economics subjects; they point out and explain the many sources of home economics news; they discuss how information is to be gathered, selected, and written; how copy is prepared for contribution; and they give emphasis to the importance of accuracy, clearness, and conciseness.

Lectures early in the second semester present something of the history of women's journals in the United States, assist the students in a study of the purpose and standards of present-day journals, and seek to give them an understanding of the editor's needs. Later the lectures give guidance in the writing of different types of longer stories in news style, the feature story, and the magazine article. There are also talks on such qualities as originality, imagination, individuality, and their value in writing.

The study of news stories is conducted in two ways. The instructors present many illustrations, good and bad, in their lectures on news-story types and news writing, and the students clip examples for themselves as part of many assign-

ments. These student clippings are thoroughly discussed in class, or in written exercises by the students themselves, and the discussion furnishes splendid opportunity for emphasizing essentials. In the second semester this phase of the work is continued in the clipping and discussion of good and bad examples of writing from women's journals. The clippings are all mounted on loose leaves and filed in the student notebooks for future reference and guidance.

In practice writing the student is kept busy throughout the course, because that is the great essential. When the assignments are short and require the writing of brief news stories, two or three such stories are required each week. Later, when the assignments are necessarily longer, only one each week is required, and finally, toward the end of the second semester, three weeks or more are allowed for the preparation of an article of considerable length. At first the assignments deal wholly with local news events that can be gathered conveniently, and they cover every possible type of news story. Later the assignments comprise the writings of home-economics stories. Always it is insisted that these stories must deal with fact, experience, or information that may be secured by the student directly at first hand. The student is not allowed to write about things that are remote, nor to indulge in the presentation of information that is wholly theoretical; the story must deal with things that "happen" in the field of home economics, the news of home economics.

Criticism is given upon every assignment and as fully as possible. Sometimes a part of each session is given to criticism; sometimes all of occasional sessions. As often as time will permit, consultation and criticism in the instructor's office are resorted to. This is especially true in the second semester's work.

RURAL-EXTENSION TEACHING—NEW YORK STATE COLLEGE OF AGRICULTURE, CORNELL UNIVERSITY.

A course in methods of rural-extension work in home economics is given by Prof. Martha Van Rensselaer in the department of home economics at Cornell University. Its purpose is to acquaint students with the problems of the farm community and to give some preparation for extension work in this field. Training in home economics in many institutions must necessarily be from the city point of view, since the laboratories offered for practical work are in cities and larger towns. Colleges of agriculture have larger opportunity for rural laboratories. The following principles are urged at the beginning of the course:

- (a) Improvement of the farm home is a part of rural progress and demands scientific instruction.
- (b) More varied instruction is needed for farm women than for other housekeepers, since the farm work comprises all forms of household work.
- (c) Everyone is dependent upon the careful application of the principles of production and distribution of which the farmer's wife has a large control. The health and welfare of any community depends upon the instruction of farm women. Therefore, the State is justified in making appropriations for extension instruction for the farm home.

(d) Farm-home extension is not a field for philanthropy. The best teaching ability and educational methods should be directed to it.

The class is instructed in methods of presentation before audiences, subject matter, preparation of outlines, public speaking, and use of good English.

The laboratory is made up of rural schools within a few miles of the university and of study clubs desiring lectures and demonstrations. Contests are held in the rural schools to encourage a study of domestic science and to give a field for extension practice. For example, a lesson is given in a rural school in bread making by a student in the extension class. Pupils are requested to practice at home and bring their bread to the schoolhouse, to be judged when some members of the class go to the school to judge the bread. Prizes are offered for the best loaves of bread and for the best description of wheat growing and bread making. Correlated subjects are treated wherever possible. In the bread contests a student presents the bread-making lesson; another student gives a talk upon wheat growing. Frequently there are members of the class who have taken courses in the agricultural college and are capable of giving a lesson in the growing of various products. Thus, in an afternoon's presentation, drawing, spelling, English, geography, arithmetic, history, and sometimes physiology are all taught by means of the lessons in domestic science and agriculture.

An advanced course of special problems is given to students who have taken the course in rural extension. They are allowed to go to schools and to meetings of organizations to present demonstrations and lectures which have been approved by an instructor.

III. DATA ON COLLEGE INSTRUCTION.

Section 1. COLLEGES GIVING INSTRUCTION IN HOME ECONOMICS.

Some 252 colleges are, in 1914-15, giving instruction in home economics. Of these colleges, 99 presented detailed statements in 1912-13 of their instruction in this field, and these detailed returns are presented in Table 1; analyzed statistically these detailed returns form the basis of the discussion of college instruction which follows. It is to be borne in mind that this statistical study of the curricula and activities of the colleges and universities is necessarily based on the limited number of schedules returned by colleges and reported in Table 1. In order to exhibit more completely the work in colleges and universities, the list of all institutions reporting such instruction is entered at the close of the detailed table (p. 68), and is followed by a list of 43 colleges which, while not offering distinctively home economics courses, do offer applied science courses having reference to the home.

TABLE 1.—Nature of college instruction in home economics in 99 institutions, by colleges.

- Planned.
- 3 homes in week for 4 months
- 2 periods a week for 1 year.
- Not yet

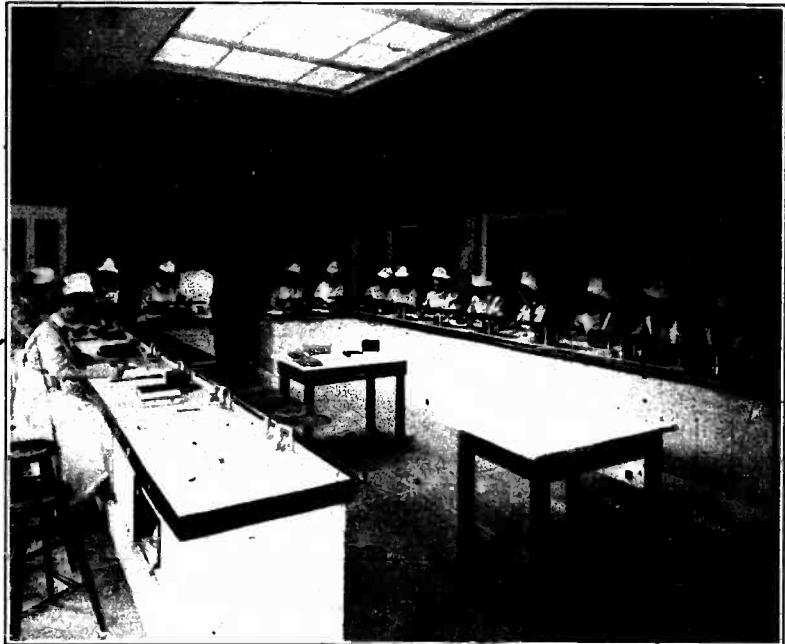
Not yet

One-half year each in cookery and serving.

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EDUCATION FOR THE HOME

TABLE 1.—*Nature of college instruction in home economics in 99 institutions, by colleges—Continued.*



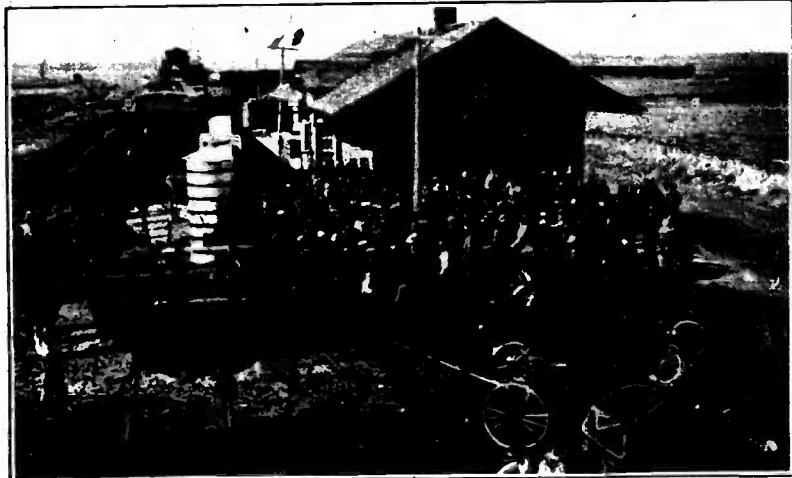
A. CLASS IN DIETETICS, SENIOR LABORATORY, HOME ECONOMICS BUILDING,
IOWA STATE COLLEGE, AMES, IOWA.



B. SKETCHING FROM MODEL IN THE COSTUME DESIGN STUDIO, TEACHERS
COLLEGE, COLUMBIA UNIVERSITY, NEW YORK, N. Y.

BUREAU OF EDUCATION

BULLETIN, 1914, NO. 38 PLATE 9



A. HOME ECONOMICS AND AGRICULTURAL DEMONSTRATION TRAIN, COLORADO AGRICULTURAL COLLEGE, FORT COLLINS.



B. FOOD PREPARATION LABORATORY, FLORIDA STATE COLLEGE FOR WOMEN, TALLAHASSEE.

TABLE I.—*Nature of college instruction in home economics in 99 institutions, by colleges—Continued.*

DATA ON COLLEGE INSTRUCTION.

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University of Tennessee, Knoxville, Tenn.	1902	X	4	A. B.	90	120	30	X	1 yr.	8	X	X
Fisk University, Nashville, Tenn.	1912	X	6	A. B.	8	172	8	X	1 yr.	116	X	X
University of Texas, Austin, Tex.	1912			A. B.	176	696	60	X			X	X
State College of Industrial Arts for Women, Denison, Tex.				B. S.				X			X	X
State Agricultural College, Logan, Utah	1890			B. S.				X			X	X
Normal School of University of Utah, Salt Lake City, Utah	1900	X	4	B. S.	6	462	6	X	(*)	100	X	X
University of Vermont, Burlington, Vt.	1908	X	4	B. S.	16	156	15	X	1 sem.	8	X	X
Middlebury College, Middlebury, Vt.	1911	X	3	B. S.	18	150	9	X		15		
Virginia College, Roanoke, Va.	1909	X	2	Cert.	25	110	10	X		(20)	X	
Sweet Briar College, Sweet Briar, Va.	1910			B. S.				X			X	
State College of Washington, Pullman, Wash.	1892	X	4	A. B.	80	110	70	X			X	X
University of Washington, Seattle, Wash.	1902	X	4	B. S.	918	109	10	X			X	X
University of Puget Sound, Tacoma, Wash.				B. A.	28	109	10	X			X	X
University of West Virginia, Morgantown, W. Va.	1899	X	4	B. S.	34	160	100	X			X	X
Milwaukee-Denver College, Milwaukee, Wis.	1901	X	2	Dip.	321	91	91	X	(*)	18	X	X
University of Wisconsin, Madison, Wis.	1903	X	4	B. S.	168	168	168	X		6 les.	X	X
				B. S.				X			X	X

¹ Approximate.
² 4 weeks, 6 hours a week.
³ A few weeks.

⁴ Atracutic one.
⁵ 6 hours per week.

⁶ A few weeks.

⁷ 5 hours per week.

⁸ Part of semester.

⁹ 75 per cent.

¹⁰ 2 hours per week for 1 year.

¹¹ 5 hours per week.

¹² 372

COLLEGES TEACHING HOME ECONOMICS, 1914-15.

The following list includes the 252 colleges and universities which are teaching home economics in 1914-15, and 5 additional institutions which are to begin such instruction in 1915-16—that is, 257 colleges in all; those colleges for which detailed statements are given in Table 1 are indicated by an asterisk (*); for some of the institutions the year is given in which the home economics course was introduced. Of the approximately 450 colleges and universities in the United States which receive women students 257, or 57 per cent, are therefore giving, or are soon to be giving, courses of instruction in home economics.

- Alabama Polytechnic Institute, Auburn, Ala.—In summer session only.
- *Woman's College of Alabama, Montgomery, Ala. 1902.
- University of Arizona, Tucson, Ariz. 1913-14.
- *Central College, Conway, Ark.
- University of Arkansas, Fayetteville, Ark. 1913-14.
- University of California, Berkeley, Cal. 1909.
- *Mills College, Mills College Post Office, Cal. 1905.
- Whittier College, Whittier, Cal.
- University of Colorado, Boulder, Colo. Summer school, 1914; department planned.
- Colorado Woman's College, Denver, Colo.
- *Colorado Agricultural College, Fort Collins, Colo. 1896.
- State Teachers College of Colorado, Greeley, Colo.
- Connecticut Woman's College, New London, Conn. Department when college opens in 1915.
- Connecticut Agricultural College, Storrs, Conn. Two-year college course, 1913; extension work.
- Delaware Woman's College, Newark, Del. 1914-15.
- Gallaudet College, Washington, D. C.—Experimental course, 1915-16.
- Howard University, Washington, D. C.—Four-year B. S. course.
- Trinity College, Washington, D. C.—Noncredit courses in cooking and foods.
- *Florida State College for Women, Tallahassee, Fla. 1894.
- *Athens College, Athens, Ga. 1906.
- *Atlanta University, Atlanta, Ga.
- Agnes Scott College, Decatur, Ga. 1911-12.
- Beaute Tift College, Forsyth, Ga.
- *Brenau College, Gainesville, Ga.
- *Southern Female College, La Grange, Ga. 1908.
- La Grange College, La Grange, Ga.
- Shorter College, Rome, Ga. 1911-12.
- *College of Hawaii, Honolulu, Hawaii. 1898.
- College of Idaho, Caldwell, Idaho.
- *University of Idaho, Moscow, Idaho.
- William and Vashti College, Aledo, Ill. 1913.
- Shurtleff College, Upper Alton, Ill. 1913-14.
- Illinois Wesleyan University, Bloomington, Ill.
- Blackburn College, Carlinville, Ill. 1913-14.
- *University of Chicago, Chicago, Ill.
- *Lewis Institute, Chicago, Ill.

- James Milliken University, Decatur, Ill.
- Northwestern University, Evanston, Ill.
- Lombard College, Galesburg, Ill. 1912.
- Greenville College, Greenville, Ill.
- Illinois Woman's College, Jacksonville, Ill. 1906.
- St. Mary's School, Knoxville, Ill.
- Lake Forest College, Lake Forest, Ill.
- McKenree College, Lebanon, Ill.
- Lincoln College, Lincoln, Ill.
- Francis Shimer School of University of Chicago, Mount Carroll, Ill. 1913.
- Northwestern College, Naperville, Ill. 1914.
- Bradley Polytechnic Institute, Peoria, Ill.
- Rockford College, Rockford, Ill. 1906.
- Augustana College, Rock Island, Ill.
- University of Illinois, Urbana, Ill. 1874; 1900.
- Wheaton College, Wheaton, Ill.
- Indiana University, Bloomington, Ind. 1913-14.
- Earlham College, Earlham, Ind.
- Goshen College, Goshen, Ind. 1913-14.
- Hanover College, Hanover, Ind. 1913-14.
- Purdue University, La Fayette, Ind. 1903.
- Union Christian College, Merom, Ind.
- Moore's Hill College, Moore's Hill, Ind.
- St. Mary's College, Notre Dame, Ind.
- Valparaiso University, Valparaiso, Ind.
- Vincennes University, Vincennes, Ind. 1913-14.
- Iowa State College of Agriculture and Mechanic Arts, Ames, Iowa. 1872.
- Iowa State Teachers' College, Cedar Falls, Iowa.
- Coe College, Cedar Rapids, Iowa. 1912.
- Des Moines College, Des Moines, Iowa.
- Drake University, Des Moines, Iowa.
- Upper Iowa University, Fayette, Iowa. 1913-14.
- Lenox College, Hopkinton, Iowa.
- State University of Iowa, Iowa City, Iowa. 1913-14.
- Ellsworth College, Iowa Falls, Iowa. 1914-15.
- Graceland College, Lamoni, Iowa.
- Cornell College, Mount Vernon, Iowa.
- Penn College, Oskaloosa, Iowa.
- Central University of Iowa, Pella, Iowa.
- Morningside College, Sioux City, Iowa. 1914-15.
- Buena Vista College, Storm Lake, Iowa. 1913-14.
- Tabor College, Tabor, Iowa. 1913-14.
- Leander Clark College, Toledo, Iowa. 1912.
- Midland College, Atchison, Kans. 1912-13.
- Baker University, Baldwin, Kans.
- University of Kansas, Lawrence, Kans.
- Bethany College, Lindsborg, Kans.
- Kansas State Agricultural College, Manhattan, Kans. 1873.
- Washburn College, Topeka, Kans. 1911.
- Fairmount College, Wichita, Kans.
- Southwestern College, Winfield, Kans. 1912-13.
- Kentucky College for Women, Danville, Ky. 1914-15.
- Liberty College for Women, Glasgow, Ky.

EDUCATION FOR THE HOME.

Hamilton College for Women, Lexington, Ky. 1913-14.
*State University of Kentucky, Lexington, Ky. 1910.
Owensboro College, Owensboro, Ky. 1913-14.
Louisiana State University, Baton Rouge, La.—State supervisor of home economics teaching in public schools is officer on staff of extension department.
Stillman Collegiate Institute, Clinton, La.
Mansfield Female College, Mansfield, La.
*H. Sophie Newcomb Memorial College, New Orleans, La.
New Orleans University, New Orleans, La.
*Bates College, Lewiston, Me. 1911-12.
*University of Maine, Orono, Me. 1909.
Morgan College, Baltimore, Md.
*Hood College, Frederick, Md. 1907.
*Maryland College for Women, Lutherville, Md. 1909.
Massachusetts Agricultural College, Amherst, Mass.—Resident work in summer school and "farmers' week"; nonresident extension work.
*Simmons College, Boston, Mass.
*Wheaton College, Norton, Mass.
Adrian College, Adrian, Mich.
Alma College, Alma, Mich.—Applied science courses offered; department to be organized in 1915.
*Michigan Agricultural College, East Lansing, Mich. 1897.
*Hillsdale College, Hillsdale, Mich.
Olivet College, Olivet, Mich.
*Alberta Lea College, Albert Lea, Minn.
*University of Minnesota, Minneapolis, Minn. 1902.
St. Olaf College, Northfield, Minn.
Macalester College, St. Paul, Minn.
Gustavus Adolphus College, St. Peter, Minn.
Mississippi Agricultural and Mechanical College, Agricultural College P. O., Miss.—Two extension workers in home economics.
Hillman College, Clinton, Miss.
Mississippi Industrial Institute and College, Columbus, Miss.
Grénada College, Grenada, Miss. 1914-15.
*Rust University, Holly Springs, Miss.
Meridian College, Meridian, Miss.
University of Mississippi, University P. O., Miss. 1913-14.
Palmer College, Albany, Mo. 1913-14.
Missouri Wesleyan College, Cameron, Mo.—Hope to introduce in 1915.
Stephens College, Columbia, Mo.
*University of Missouri, Columbia, Mo. 1901.
Central College, Fayette, Mo.
*Synodical College, Fulton, Mo.
*Lexington College for Women, Lexington, Mo. 1912.
Missouri Valley College, Marshall, Mo.
Cottey College, Nevada, Mo.
Park College, Parkville, Mo.
Lindenwood Female College, St. Charles, Mo.
*Forest Park University, St. Louis, Mo. 1913.
Central Wesleyan College, Warrenton, Mo. 1914-15.
*Montana College of Agriculture and Industrial Arts, Rozeman, Mont. 1894.
University of Montana, Missoula, Mont.
*Bellevue College, Bellevue, Nebr. 1909.

Cotner University, Bethany, Nebr.
Union College, College View, Nebr.
Hastings College, Hastings, Nebr. 1914-15.
*University of Nebraska, Lincoln, Nebr., 1898.
University of Omaha, Omaha, Nebr.
State University of Nevada, Reno, Nev.
New Hampshire College of Agriculture and Mechanic Arts, Durham, N. H. 1913-14.
Rutgers Scientific School, New Brunswick, N. J.—Winter and summer courses began in 1912-13.
University of New Mexico, Albuquerque, N. Mex. 1914-15.
*New Mexico College of Agriculture and Mechanic Arts, State College, N. Mex.
Alfred University, Alfred, N. Y.
New York State Normal College, Albany, N. Y.
*St. Lawrence University, Canton, N. Y. 1907.
*Elmira College, Elmira, N. Y., 1911.
*William Smith College, Geneva, N. Y. 1912.
*Cornell University, Ithaca, N. Y. 1908.
Hunter College of City of New York, New York, N. Y. 1903.
New York University, New York, N. Y.
*Teachers College, Columbia University, New York, N. Y. 1888.
University of Rochester, Rochester, N. Y.—Students may elect in Mechanics Institute, Rochester, N. Y.
Elizabeth College, Charlotte, N. C. 1914-15.
Elon College, Elon College P. O., N. C.
Greensboro Female College, Greensboro, N. C. 1913-14.
Shaw University, Raleigh, N. C.
Southern Presbyterian College, Red Springs, N. C.
*Salem Academy and College, Winston-Salem, N. C.
*North Dakota Agricultural College, Agricultural College P. O., N. Dak. 1890.
*University of North Dakota, University P. O., N. Dak. 1910.
Ohio Northern University, Ada, Ohio—Summer school work.
Municipal University of Akron, Akron, Ohio—Curtis school of home economics, 1914.
Ashland College, Ashland, Ohio. 1913-14.
*State Normal College of Ohio University, Athens, Ohio. 1910.
Mount Union-Scioto College, Alliance, Ohio. 1914-15.
German-Wallace College, Berea, Ohio. 1913.
Cedarville College, Cedarville, Ohio. 1912-13.
University of Cincinnati, Cincinnati, Ohio—School of household arts opened in 1914.
College for Women, Western Reserve University, Cleveland, Ohio. 1913-14.
*Ohio State University, Columbus. 1803.
*Defiance College, Defiance, Ohio. 1910.
Denison University, Granville, Ohio. 1910.
Lebanon University, Lebanon, Ohio. 1913-14.
Franklin College, New Athens, Ohio. 1913-14.
*Muskingum College, New Concord, Ohio. 1912.
*Miami University, Oxford, Ohio.
*Oxford College for Women, Oxford, Ohio.
*Western College for Women, Oxford, Ohio. 1902.
*Lake Erie College, Painesville, Ohio. 1808.
Heidelberg University, Tiffin, Ohio. Will open department in 1915.
Wilberforce University, Wilberforce, Ohio.

Wilmington College, Wilmington, Ohio. 1913-14.
University of Oklahoma, Norman, Okla. 1914-15.
*Oklahoma Agricultural and Mechanical College, Stillwater, Okla. 1900.
Henry Kendall College, Tulsa, Okla. 1913-14.
*Oregon State Agricultural College, Corvallis, Oreg. 1888.
Pacific College, Newberg, Oreg. 1913-14.
Philomath College, Philomath, Oreg.
*Allentown College for Women, Allentown, Pa. 1910.
Moravian Seminary and College for Women, Bethlehem, Pa.
*Blairsville College, Blairsville, Pa. 1910.
Bucknell University, Lewisburg, Pa. 1913-14.
Irving Female College, Mechanicsburg, Pa.
Westminster College, New Wilmington, Pa. 1914.
*Temple University, Philadelphia, Pa. 1894.
*Carnegie Institute of Technology, Pittsburgh, Pa. 1912.
University of Pittsburgh, Pittsburgh, Pa.
*Pennsylvania State College, State College P. O., Pa.
University of Porto Rico, San Juan, P. R. 1912.
*Rhode Island State College, Kingston, R. I.
Benedict College, Columbia, S. C. 1913-14.
College for Women, Columbia, S. C.
Woman's College of Due West, Due West, S. C.
*Lander Female College, Greenwood, S. C. 1911.
Clafin University, Orangeburg, S. C.
Converse College, Spartanburg, S. C. 1914-15.
*South Dakota State College of Agriculture and Mechanic Arts, Brookings,
S. Dak. 1887.
Dakota Wesleyan University, Mitchell, S. Dak. 1914-15.
Redfield College, Redfield, S. Dak. 1913-14.
Sioux Falls College, Sioux Falls, S. Dak. 1913-14.
University of South Dakota, Vermillion, S. Dak. 1913-14.
*Lincoln Memorial University, Cumberland Gap, Tenn. 1911.
Tusculum College, Greenville, Tenn.
Memphis Conference Female Institute, Jackson, Tenn. 1913-14.
*Carson and Newman College, Jefferson City, Tenn.
Knoxville College, Knoxville, Tenn.
*University of Tennessee, Knoxville, Tenn. 1902.
Maryville College, Maryville, Tenn.
George Peabody Teachers College, Nashville, Tenn. 1914.
*Fisk University, Nashville, Tenn.
Washington College, Washington College P. O., Tenn. 1913-14.
Simmons College, Abilene, Tex. 1913-14.
*University of Texas, Austin, Tex. 1912.
Baylor Female College, Belton, Tex. 1914.
Carlton College, Bonham, Tex.
Howard Payne College, Brownwood, Tex. 1913-14.
*State College of Industrial Arts for Women, Denton, Tex.
Westminster College, Tehuacana, Tex. 1913-14.
*Utah Agricultural College, Logan, Utah. 1890.
*University of Utah, Salt Lake City, Utah. 1909.
*University of Vermont, Burlington, Vt. 1908.
Middlebury College, Middlebury, Vt. 1911.
Martha Washington College, Abingdon, Va.
Virginia Interment College, Bristol, Va. 1913-14.

Hollins College, Hollins, Va. 1912-13.
Eastern College, Manassas, Va. 1913-14.
Southern Female College, Petersburg, Va. 1910.
*Virginia College, Roanoke, Va. 1909.
Roanoke Woman's College, Salem, Va.
Sweet Briar College, Sweet Briar, Va. 1910.
*State College of Washington, Pullman, Wash. 1892.
*University of Washington, Seattle, Wash. 1908.
Spokane College, Spokane, Wash.
*University of Puget Sound, Tacoma, Wash.
Whitworth College, Tacoma, Wash.
Bethany College, Bethany, W. Va.
Powhatan College, Charlestown, W. Va.
*West Virginia University, Morgantown, W. Va. 1899.
*University of Wisconsin, Madison, Wis. 1903.
*Milwaukee-Downer College, Milwaukee, Wis. 1901.
Carroll College, Waukesha, Wis. 1913-14.
University of Wyoming, Laramie, Wyo. 1907.

COLLEGES OFFERING INSTRUCTION RELATED TO THE HOME.

The following 43 colleges, which report no courses in home economics, offer courses related to the home in their scientific and academic departments, as follows:

Pomona College, Claremont, Cal.—Related courses in biology, economics, and sociology.
University of Colorado, Boulder, Colo.—School of social and home service just established.
Blackburn University, Carlinville, Ill.—Related courses in chemistry and biology.
Northwestern University, Evanston, Ill.—Course in historic styles in architecture and furniture.
Monmouth University, Monmouth, Ill.—Related courses in chemistry and biology.
Central Holiness University, University Park, Iowa.—Related courses in biology.
Parsons College, Fairfield, Iowa.—Related courses in chemistry, physics, biology, economics, and sociology.
Grinnell College, Grinnell, Iowa.—Courses on food plants, chemistry of foods, decoration, design, and economy of the house.
College of Emporia, Emporia, Kans.—Related courses in biology.
Ottawa University, Ottawa, Kans.—Related courses in household chemistry, food and water analysis.
Friends University, Wichita, Kans.—Sanitary chemistry, food chemistry.
University of Louisville, Louisville, Ky.—Food chemistry, applied biology and bacteriology.
Boston University, Boston, Mass.—Related courses in biology, hygiene, house, food chemistry, and sociology.
Massachusetts Institute of Technology, Boston, Mass.—Related courses in food chemistry, sanitary chemistry, bacteriology, hygiene, and sanitation.
Smith College, Northampton, Mass.—Sanitary chemistry, applied economics, and charity work.

Mount Holyoke College, South Hadley, Mass.—Chemistry of foods, landscape gardening.

Wellesley College, Wellesley, Mass.—Economics of consumption; air, water, and food analysis.

University of Michigan, Ann Arbor, Mich.

Kalamazoo College, Kalamazoo, Mich.—Related courses in sociology, chemistry, etc.

Olivet College, Olivet, Mich.—Household chemistry.

Hamline University, St. Paul, Minn.—Related courses in biology, chemistry, physics, economics, and sociology.

Central Mississippi Institute, French Camp, Miss.—Related instruction.

York College, York, Nebr.—Related courses in biology, hygiene, chemistry, economics, and sociology.

Vassar College, Poughkeepsie, N. Y.—Sanitary chemistry; municipal and house sanitation; food analysis; charity work.

Wells College, Aurora, N. Y.—Related work in biology, hygiene, chemistry, and economics.

Eton College, Eton College, N. C.—Farmers' wives' week; related courses in biology, chemistry, physics, hygiene, sociology, and economics.

Agricultural and Mechanical College for the Colored Race, Greensboro, N. C.—Related courses in biology, chemistry, and economics.

Trinity College, Durham, N. C.—Related courses in economics.

Buchtel College, Akron, Ohio.—Related courses in household chemistry, economics, and sociology.

St. John's University, Toledo, Ohio.—Related courses in biology.

Wittenberg College, Springfield, Ohio.—Related courses in biology.

Pacific University, Forest Grove, Oreg.—Related courses in biology and chemistry.

Willamette University, Salem, Oreg.—Related courses in biology, hygiene, sociology, and the family as a social institution.

Bryn Mawr College, Bryn Mawr, Pa.—Related work in biology, chemistry, economics, and sociology.

Juniata College, Huntingdon, Pa.—Related courses in biology.

Pennsylvania College for Women, Pittsburgh, Pa.—Related course in social service.

Tennessee College, Murfreesboro, Tenn.—Related course in hygiene.

Vanderbilt University, Nashville, Tenn.—Related courses in chemistry, bacteriology, physiology, anatomy, economics, and sociology.

Dallas Christian University, Fort Worth, Tex.—Related courses in biology, bacteriology, physiology, and hygiene.

Whitman College, Walla Walla, Wash.—Related courses in biology, hygiene, and chemistry.

Condor College, Milwaukee, Wis.—Related courses in biology and hygiene.

Mission House of the Reformed Church in the U. S., Plymouth, Wis.—Related courses in biology, hygiene, chemistry, and physics.

Ripon College, Ripon, Wis.—Related course in biology.

DATES OF INTRODUCING HOME-ECONOMICS INSTRUCTION INTO COLLEGES:

Iowa State College, at Ames, has the honor of offering the first collegiate instruction in home economics, in 1872; Kansas State Agricultural College followed the next year, 1873; and the University of Illinois the following year, 1874, although the instruction in the last institution was interrupted for a time and then reinstated in

1900.¹ Other early departments were the South Dakota College of Agriculture in 1887, the Oregon Agricultural College in 1888, and in the same year the New York College for Training Teachers, now Teachers College, Columbia University. The dates of introducing instruction were stated by 147 of 257 colleges reporting instruction in home economics. (Table 1, and list on p. 68.)

In 20 cases the date is 1900 or earlier; 16 additional colleges opened departments from 1901 to 1907; beginning with 1908, the collegiate movement has steadily gained impetus, 4 colleges introducing instruction in 1908, 6 in 1909, 9 in 1910, 8 in 1911, 15 in 1912, 45 in 1913, and 19 in 1914, while 5 colleges announce advance plans for 1915. Distinctive courses in home economics are given by 257 colleges and universities; 43 colleges give applied science courses related to the home; together, a total of 300 higher institutions of the 450 which receive women students. That is, two-thirds of the colleges are already recognizing this field of instruction.

Section 2. DEGREES—TIME ALLOTMENT.

COLLEGE DEGREES OFFERED IN HOME ECONOMICS.

Of 99 colleges furnishing complete data (Table 1), 86 reported that a curriculum in home economics is offered; i. e., an organized group of courses including home economics and related academic courses, extending over one or more years. Of the 86, 3 reported a one-year course; 17, a two-year course; 3, a three-year course; and 54, a four-year course; while 8 reported both two-year and four-year courses, and 1 a three- and four-year course. Sixty per cent, therefore, of the college curricula in home economics set a minimum requirement of four years. Seventy-four colleges furnished data as to the degree, diploma, or certificate granted to those who successfully complete the course. In 12 colleges the degree of bachelor of arts is given for the course in home economics, in 44 colleges the degree of bachelor of science, in 4 institutions the B. S. or A. B. degree; in 1 institution the A. B. degree and a certificate, and in 3 institutions the B. S. degree and a certificate. In all, 64 colleges of the 74 reporting on this question (86 per cent) give the bachelor's degree, and of these 64 giving the bachelor's degree, 44 (71 per cent) give preference to the B. S. degree. Three other institutions give diplomas for the home economics course, and 7 give certificates.

TIME ALLOTTED TO MAIN DIVISIONS OF COLLEGE SUBJECT MATTER IN HOME ECONOMICS.

The time allotted for college instruction in home economics is shown in summary form for various divisions of subject matter in

¹ These early dates are taken from "The Home Economics Movement," Review and Usher, Whitcomb and Barrows, Boston.

Table 2 below. The hours for individual colleges are not shown, but rather the general facts as to the distribution of time in all colleges. The data are given in terms of total hours of teaching and are secured by multiplying the number of hours per week for which instruction in any topic is given by the number of weeks devoted to that topic.

For each main division of subject matter and for its subordinate topics there is indicated the number of colleges giving data as to this instruction (column 2); the amount of instruction allotted to the subject or topic is indicated by the four measures: (a) The smallest number of hours allotted for this subject or topic in any college and the largest number of hours so allotted in any college (column 3); (b) the mean or middle value of hours, i. e., the value halfway between the largest and smallest number when the hours of different colleges are arranged in order of size (column 4); (c) the hours which taken as limits include within them the hours of half the colleges (column 5); and (d) "modes," or those numbers of hours for which instruction is given more commonly than it is for other hours. (In column 6 the figure in parentheses with each modal number states the number of colleges giving instruction for that number of hours.) The entry of each main division of subject matter, e. g., "1, House," "2, Family and household," summarizes or presents totals for its subordinate topics. There is presented the combined time allotment for all these divisions of subject matter, in item No. 7 at the end of this table.

This table reveals as nothing else can the general tendencies in college teaching of home economics. The facts of item No. 7 are especially significant: For 87 colleges furnishing data, the total hours of instruction given in home economics varies all the way from 36 to 8,748 hours—the latter an amount of instruction sufficient to employ a student's exclusive time for 20 hours a week for five academic years of 36 weeks each; while four other colleges give similarly in number of gross hours of instruction from 2,094 to 2,836 hours. The typical college may doubtless be thought of as giving about 804 gross hours of instruction in home economics—half give more than that amount and half give less; half of the colleges also give between 497 and 1,186 hours. This offers a standard of self-criticism for the individual college, as indeed do the further details as to tendencies in time allotments for the different divisions and subdivisions of home economics.

Using the mean number of hours allowed by different colleges as the most adequate single figure to indicate their general practice in allowing time in the college schedule, it is noted that the mean hours allotted the general divisions of subject matter are as follows: All instruction on the house, 80.84 hours; the family and household, 72 hours; food and nutrition, 860 hours; textiles and clothing, 240 hours;

home economics teaching, 90 hours; institutional households, 48 hours. It is common knowledge that foods developed as the first division of subject matter; its practical usefulness created the demand, and its close relationships in subject matter to chemistry and physiology won it an easy welcome in the college curriculum. Textiles and clothing ranks next, 240 hours as compared with 360, or two-thirds as large an element in the curriculum as is foods; the other divisions of subject matter—the house, the family, education, and institutional households—together secure a combined time allotment about equal to textiles and clothing.

The relative importance of the main divisions of subject matter at present is indicated by the number of colleges reported here as giving such instruction, and, while not including all colleges which teach these various subjects, the figures are doubtless reliable for the comparative situation: Thus, 73 colleges give instruction in foods and nutrition; the same number in textiles and clothing; 68 in the house; 63 in the family and household; 44 give courses in home economics for teachers; and 9 in the administration of institution households; or scaling the number of colleges giving food courses as 100 per cent, the comparison reads: Food courses, 100 per cent; textiles and clothing, 100 per cent; the house, 93 per cent; the family, 86 per cent; home economics education, 60 per cent; institutional administration, 12 per cent.

The complete table (2) is to be read as follows: Data for courses on the house are given for 68 colleges (column 2); these colleges allot (column 3) from 16 to 690 hours of teaching to this division of subject matter; the mean or middle value of hours so allotted is 80-84, half the colleges allotting more and half less than this number (column 4); half of the colleges allot between 41 and 132 hours to this division of subject matter (column 5); modal or usual time allotments (column 6) given to it are 36 hours (as given by 7 colleges), 72 hours (as given by 4 colleges), and 108 hours (as given by 4 colleges). Among these 68 colleges giving instruction in this division of subject matter, instruction is given in its various subdivisions, "house structure," "house decoration," "house furnishings," etc., as indicated by the table: For "house structure" by 30 colleges which give from 2 to 180 hours, with the mean value 36-45 hours; the limits including half the colleges, 38 to 54 hours; and the modal hours, 24¹, 54¹, 72², and 108³ (i. e., for 8, 4, 2, and 2 colleges, respectively). So for the other subdivisions of subject matter on the house; and so in turn for the other main divisions of subject matter 2, 3, 4, 5, and 6, and their respective subdivisions. The interested reader can thus discover the significant tendencies in college teaching at present; and the individual institution can use the table as a

measuring stick to see whether its own teaching falls short of, or reaches beyond, the general practice of American colleges as regards the entire home economics curriculum and the various elements of that curriculum.

It is worth while to state here the comparison of the number of institutions teaching each subdivision of subject matter and the mean number of hours thereto allotted, remembering that "number of institutions" includes only colleges furnishing complete data; hence these numbers are not reliable for the total number of colleges, but are reliable between themselves for comparisons of the work given by this selected group of colleges. The hours given are "the mean number of hours," which are simply a more accurate kind of "average" numbers.

In the 68 colleges included as giving instruction regarding the house, "house sanitation" and "house structure and design" are the two courses most commonly given, the former offered by 35 colleges for a mean of 36 hours, and the latter by 30 for 36-45 hours; while house decoration is a subject of instruction in 24 colleges for a mean of 40-48 hours, house furnishings in 20 for 32-36 hours, equipment in 16 for 18-24 hours, and housework or housewifery in 20 for a mean of 18-24 hours.

In the 68 colleges included as giving courses dealing with the social aspects of the household, household management is offered by 35 colleges and home nursing by 35; while economics of the household is taught in 18, domestic sociology in 15, and the care of the child in 10. The mean time devoted to each of these courses is 36 hours (except 30 for the child-care course).

In the 73 colleges included as giving food courses, the preparation of food is taught in 69 colleges, and the mean time devoted to it is the longest of any food course—128-136 hours. Advanced food preparation is taught in 53 institutions, with a mean of 80 hours. "Food materials" is taught in 44 colleges for a mean of 54 hours, food chemistry in 37 colleges for 72 hours, and dietetics in 55 institutions for a mean of 60 hours. Other food courses are table service, taught by 31 colleges for a mean of 36 hours; cookery for invalids, by 37 colleges for 36 hours; institutional cookery, by 10 colleges for 24-48 hours; demonstration cookery, by 22 colleges for 32-36 hours; history of cookery, by 6 colleges for 15 hours; and marketing, by 16 colleges for 18-20 hours.

In the 73 colleges giving instruction regarding clothing, 53 give instruction in textile fibers and materials for a mean of 36 hours, and 12 give instruction in the manufacture and selection of clothing for 24-36 hours. Clothing courses emphasizing laboratory work are given as follows: Hand sewing, by 49 colleges for a mean of 68

hours; machine sewing by 40, for 72 hours; dressmaking by 40, for 100 hours; millinery by 27, for 54 hours. The care and repair of clothing is taught in 11 colleges for 12 hours. The relation of art principles to the design of clothing is taught in two types of courses: The history of costume, taught in 14 colleges, for a mean of 34-36 hours; and costume design, in 18 colleges, for 48-54 hours. "Laundry, theory, chemistry, economics," is taught by 23 colleges for a mean of 18-32 hours, and laboratory practice in laundry in 4 colleges for 32-72 hours.

Data on time allotments for the courses for teachers of home economics are furnished by 44 colleges. A course on the home economics movement is given by 14 colleges for a mean of from 40-48 hours; a survey course in home economics by 6 colleges for a mean of 16-80 hours. Courses in "methods of teaching household arts in elementary schools" are given by 22 colleges for 36 hours; "in secondary schools" by 23 colleges for 54 hours; and "practice teaching" by 33 colleges for a mean of 48 hours.

The "number of institutions" giving these courses, it should be repeated, is not the total number of colleges offering such instruction; it is that part of the total which furnished complete data; the number of mean hours stated, however, is doubtless a reliable index of the quantity of instruction given for all colleges.

TABLE 2.—*Allotment of time in colleges, or divisions of home economics subject matter—by main divisions and by subdivisions.*

Divisions of instruction and topics.	Colleges giving data on such instruction.	Smallest and largest number of hours given to this division.	Mean or middle value of hours allotted.	Limits (in hours) which include 50 per cent of the colleges.	Modal or most usual time allotments.
1. House.....	68	16-690	80-84	41-132	36 (7), 72 (4), 108 (4).
House structure and design.....	30	2-180	36-45	24-54	24 (3), 54 (4), 72 (2), 108 (2).
House decoration.....	24	2-270	40-48	36 (3)	36 (4), 48 (4), 54 (3), 108 (3).
House furnishings.....	20	4-216	32-38	18-51	18 (3), 54 (3).
House equipment.....	16	4-120	18-24	10-40	4 (3), 6 (3), 18 (2).
House sanitation.....	35	4-108	26	18-48	36 (6), 48 (5).
Housework—housewifery.....	20	5-112	18-24	6-30	5 (3), 8 (3), 18 (2), 36 (2), 50 (2), 108 (2).
2. The family and household.....	63	6-416	72	36-100	36 (4), 48 (8), 54 (5), 72 (8), 108 (4), 144 (4).
Economics of the family.....	18	2-72	36	18-36	36 (4).
Family as a social institution.....	15	2-128	36	9-54	54 (3), 108 (3).
Household management.....	25	4-108	36	24-54	36 (8), 48 (4), 54 (1).
Care of sick—home nursing.....	14	4-160	36	20-36	36 (10).
Care of child.....	10	2-160	30	24-32	

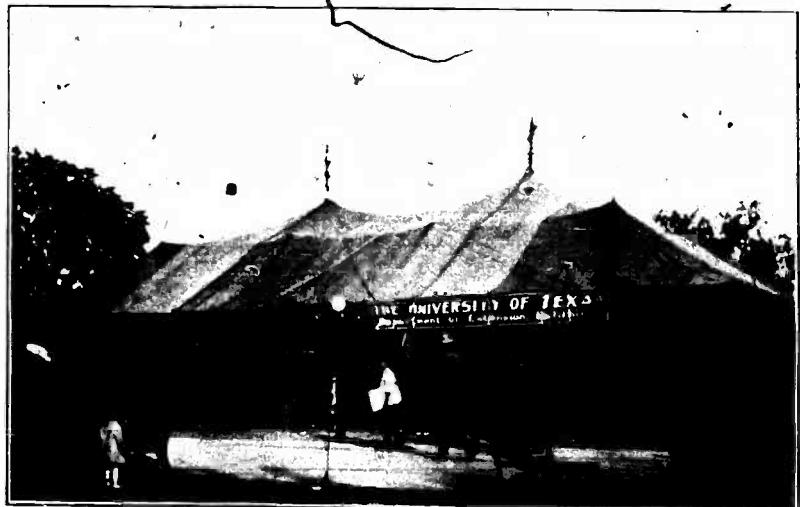
¹ Figures in parentheses indicate number of colleges giving allotment preceding.

TABLE 2.—*Allotment of time in colleges or divisions of home economics subject matter—by main divisions and by subdivisions—Continued.*

Divisions of instruction and topics.	Colleges giving data on such instruction.	Smallest and largest number of hours given to this division.	Mean or middle value of hours allotted.	Limits (in hours) which include 60 per cent of the colleges.	Modal or most usual time allotments.
3. Food and nutrition	73	72-1,250	360	262-558	
Food materials: Production, manufacture, economics.	44	6-144	54	36-72	48 (3), 54 (4), 72 (8), 108 (3).
Food chemistry	37	12-288	72	60-112	54 (5), 72 (7), 108 (3), 216 (3).
Diabetics (advanced)	55	12-288	60	48-100	36 (5), 54 (10), 72 (5), 90 (4), 108 (8), 144 (4).
Food preparation (practical cookery)	69	32-1,860	128-136	48-180	72 (10), 96 (5), 108 (6), 144 (15), 180 (4), 216 (8).
Advanced cookery	53	20-240	80	48-136	36 (5), 48 (5), 72 (4), 108 (7), 144 (4).
Table service	31	4-180	36	16-54	18 (3), 36 (3), 64 (3), 72 (3).
Cookery for invalids	37	2-144	36	20-48	24 (5), 36 (7), 108 (4).
Large quantity, or institutional cookery	10	12-128	24-48	20-108	
Demonstration cookery	22	4-144	32-36	16-56	36 (5).
History of cookery	6	4-24	15		
Marketing	16	2-144	18-20	16-36	18 (3), 34 (2).
4. Textiles and clothing	73	14-1,872	240	128-505	144 (4), 216 (5).
Textile fibers and materials	53	4-360	36	32-72	24 (4), 36 (12), 54 (4), 72 (6).
Manufacture and selection of clothing	12	3-216	24-36	8-36	
Hand sewing	49	12-262	68	36-96	48 (5), 72 (11).
Machine sewing	40	8-240	72	39-108	36 (4), 72 (7).
Drafting	23	9-216	36	18-72	
Dressmaking	40	18-864	100	72-144	72 (7).
Commercial dressmaking	5	36-170	72		
Embroidery	20	6-90	36	32-48	36 (4).
Millinery	27	6-432	54	32-80	36 (5), 72 (4).
Costume design	18	4-204	48-54	36-80	36 (4).
History of costume	14	6-144	34-36	24-54	
Care and repair of clothing	11	2-60	12		
Laundry—theory, chemistry, economics	23	2-180	18-32	12-50	18 (3), 36 (3).
Domestic laundry—practice	8	2-96	22-72	32-72	
5. Courses for teachers	44	18-342	90	52-144	72 (5), 108 (4).
Home economics movement	14	2-72	40-48	16-18	
Survey course in home economics	6	2-144	16-80		
Teaching of household arts:					
Elementary schools	22	2-170	36	16-72	36 (6), 72 (3).
Secondary schools	23	2-170	54	16-72	54 (3), 72 (3).
Colleges and higher institutions	4	6-72	12-36	12-36	
Practice teaching	33	4-120	48	32-80	36 (5), 72 (3).
6. Institution households	9	24-456	48		48 (3), 54 (2).
Institution buildings	1				
Institution organization and management	3				
Institution diets	2				
Institution cooking	2				
Lunch-room work	2				
Institution laundry—theory	1				
Institution laundries—practice	1				
7. Total hours' instruction in all above subjects	87	36-3,748	804	407-1,186	

BUREAU OF EDUCATION

BULLETIN, 1914, NO. 38 PLATE 10



A. TENT FOR HOME ECONOMICS TRAVELING EXHIBIT, UNIVERSITY OF TEXAS,
AUSTIN, TEX.



B. HOME ECONOMICS EXHIBIT CAR, CORNELL UNIVERSITY, ITHACA, N. Y.

Section 3. COLLEGE STUDENTS TAKING HOME-ECONOMICS COURSES.

Sixty-four colleges reported the number of students in the home-economics courses, and the total number of women students in the institution, respectively, affording a comparison of the two numbers. The home-economics registration numbers varied from 2 to 580, with 45 as the mean number of students taking home economics in a college; the total number of women students in the same institutions varied from 29 to 1,079, with 177 as the median number. The percentage of women students taking the home-economics course varied from about 1 per cent in 3 institutions to from 93 to 100 per cent in 4 institutions; and the mean percentage of students in home economics courses was 26 per cent.

COMPARATIVE NUMBER OF STUDENTS IN DIFFERENT TYPES OF COLLEGE COURSES IN HOME ECONOMICS.

Fifty-three colleges (21 per cent of the 252 colleges offering instruction) report that 1,587 students are pursuing courses in preparation for teaching home economics; and that 3,159 students, almost exactly twice as many, are following home-economics courses for general, nonprofessional, and home-use purposes; and 16 of the 50 report that 195 students are preparing themselves for professional service in household and institution management, dietetics, and allied professional fields. The registration in the 50 teachers' curricula varies from 1 to 314 students, with the median number 15; that in the 46 general curricula varies from 7 to 600, with the median number 26; that in the 16 administration curricula from 1 to 84 students. In 41 institutions there are more students in the general course than in the teachers' course, and in 9 institutions the reverse relation holds.

In addition to the registrations given above, 229 additional students preparing for teaching were reported by 6 colleges; 309 taking home economics for home use by 11 other colleges; and 69 students in vocational courses in household administration and dietetics, etc., by 7 colleges. The total registrations reported were therefore as follows: In preparation for teaching, 1,788 students in 56 colleges; in courses for homemaking, 3,495 students in 61 colleges; and in household administration curricula, 264 students in 24 colleges. Of the total of 5,547 college students reported in these home-economics courses, 3,495 (63 per cent) are studying for home use; 1,788 (32.2 per cent) are preparing for teaching, and 264 (4.8 per cent) are preparing for administrative positions as dietitians, household and institution managers, etc.

These total registration figures come from about 35 per cent of the colleges teaching home economics in 1912-13. However, the institutions reporting registration were the more important colleges; so that these total registration figures represented perhaps two-thirds of the

college students in home-economics courses. Probably there were at least 8,000 college women following courses in home economics in 1912-13; and in 1914-15 there are probably not less than 12,000, out of the 75,000 women students pursuing undergraduate or graduate courses in colleges and universities.

Section 4. COLLEGE COURSES IN HOME ECONOMICS.

SCIENTIFIC AND GENERAL COLLEGE COURSES RELATED TO THE HOME.

Forty-three colleges (p. 73) which do not teach home economics offer courses in their academic and scientific departments which have some direct relation to preparation for home life. These "related courses" in 37 of these colleges which reported in detail and similar courses in 140 of the colleges which teach home economics have been distributed. Table 3 shows that related courses in biology are thus offered by 156 of these 177 colleges; chemistry by 138, hygiene by 125, economics by 119, sociology by 102, and art and architecture by 68. One of the results of this instruction, it is believed, is the securing of information which will be of some direct application in the household. Courses in bacteriology as a basis for public and domestic sanitation; the subject of eugenics, which is given attention in nearly 50 institutions; food chemistry, physiological chemistry with its relations to nutrition, and sanitary chemistry; physics with some applications to common life; the economics of consumption, the economic basis of the family, and the standard of living, in courses in economics; the family as a course or topic in sociological study; the legal relations of women and of the household; art in its relations to the house, house furnishings, costume, and landscape gardening—these are some of the subjects taught in academic and scientific courses apart from specific courses in home economics, which will have a practical issue later in life as students come into household relationships. The full data are as follows:

TABLE 3.—Number of colleges offering courses related to the home.

	Colleges.		Colleges.
Biology	156	Economics	119
Human anatomy	80	Economics of consumption	77
Human physiology	134	Economics of the household or economic basis of the family	60
Bacteriology in relation to household	90	Legal and economic position of women	56
Bacteriology in relation to public sanitation	90	Industrial status of women	56
Eugenics	48	The standard of living	69
Hygiene	125	Public aspects of the household	36
Personal hygiene	410	Sociology	100
Public health and sanitation	90	The family	86
Care of the sick—home nursing	58	History of the household	63
Care of the child	86	The child and the state	65
Chemistry	138	Law	27
Food chemistry	109	Laws affecting household—"domestic relations"	23
Biological chemistry (with reference to nutrition)	66	Legal position of women	22
Sanitary chemistry	55	Art and architecture	68
Household chemistry	87	The house	45
Textile chemistry	41	House decorations and furnishings	57
Physics	66	Costume design	33
Applied physics of household	66	Landscape gardening	2
Heat, labor-saving machinery	69		

THE COLLEGE COURSE FOR TEACHERS OF HOME ECONOMICS.

Questions were asked as to the collegiate curriculum for teachers of home economics. Of 83 colleges reporting definite home economics curricula, 68 teach the history of education; 74, educational psychology; 61, general methods of teaching; 61, special method of teaching home economics; and 57 require practice teaching of their students who wish later to teach. These data are encouraging as regards the preparation offered college students who wish to teach home economics later. The old-time college taught subject matter only; the college to-day offers, alongside subject-matter courses, instruction on the principles of education, the psychological and social foundations of the general teaching method, the method of teaching the special subject for which preparation is sought, and even apprentice teaching to secure familiarity with schoolroom conditions. Fifty-seven colleges, it was just stated, provide practice teaching in home economics, and of these 47 furnished a statement of the amount required. From 2 to 60 "lessons" (mean; 15-16 lessons) are required by nine colleges; from 24 to 320 hours (mean, 75-100 hours) are required by nine colleges; and from 2 to 60 "weeks" (mean, 20 weeks) are required by 28 colleges. "Twenty lessons" or "twenty weeks," probably equivalent amounts, may be taken as the usual amount of practice teaching required by the college in training home-economics teachers.

COLLEGE SUMMER SCHOOLS OF HOME ECONOMICS.

Home economics is taught in many of the college and university summer schools. The courses are usually organized for teachers, although they prove interesting to many housekeepers. More could be done for the latter group by special plans.

Among others, the following institutions offer summer instruction:

Bradley Polytechnic Institute, Peoria, Ill.; University of California; Carnegie Institute of Technology, Pittsburgh; College of Industrial Arts, Denton, Tex.; University of Chicago; Colorado State Teachers' College, Greeley, Colo.; Connecticut Agricultural College; Cornell College, Mound Vernon, Iowa; Cornell University, Ithaca, N. Y.; Des Moines College, Iowa; Johns Hopkins University; University of Idaho; University of Illinois; Iowa State College; Kansas Agricultural College; University of Kentucky; Lewis Institute, Chicago, Ill.; University of Louisiana; University of Maine; Massachusetts Agricultural College; Middlebury College, Vermont; University of Minnesota; University of Missouri; University of Nebraska; New Jersey State College, New Brunswick, N. J.; University of North Dakota; Ohio State University; Oregon Agricultural College; Peabody College for Teachers, Nashville, Tenn.; Pennsylvania State College; South Dakota State College; Summer School of the South, Knoxville, Tenn.; Teachers College of Columbia University, New York City; University of Texas; Tulane University; Utah State Agricultural College; University of Utah; University of Virginia; State College of Washington; West Virginia University; University of Wisconsin.

¹ Began 1914.

One or two observations may be made upon these university summer schools. In the first place, they have been a most effective means of introducing home-economics teaching into the public schools; the schools at the University of Virginia and the Summer School of the South, at Knoxville, have been especially remarkable in this way. Again, the introduction of home economics into the summer school has in several instances been the preface to the establishment of a university department, as at the University of California.

The summer sessions of certain noncollegiate institutions, notably Stout Institute, Menominee, Wis., and Mechanics Institute, Rochester, N. Y., may well be mentioned here; also the summer school of cookery of Mrs. Janet MacKenzie Hill, at South Chatham, Me., and especially the school of domestic science at Chautauqua, N. Y., which enlists college teachers of home economics on its staff and attracts many teachers as well as housekeepers. Domestic science instruction began at Chautauqua in 1879; in the school of 1913 there were offered the following: Demonstration lectures, home cookery, advanced cookery, the house, schoolroom cookery, food and dietetics, institution cookery, household chemistry, primary methods, sewing, shirt waists.

Section 5. OTHER AGENCIES FOR TEACHING HOME ECONOMICS.

COLLEGE-EXTENSION EDUCATION FOR THE HOME.

The State colleges and universities with home-economics departments have quite commonly adopted a policy of extension education for the home, just as their entrance into agricultural education has involved the development of extension agricultural teaching. Indeed, extension of home education has plainly been in many institutions a corollary of agricultural extension. There is need that its own validity be accepted, however, so that home extension teaching will be developed for urban as well as for country homes. College-extension work for the home takes the form of housekeepers' conferences, short-term schools of housekeeping, home education demonstration trains, movable schools of household arts, extension-lecture service, popular bulletins for the housewife, correspondence instruction, information service which has great possibilities of expansion through the county agricultural bureau or agent cooperating with the colleges, and many other agencies, such as clubs, exhibits, and contests.

HOUSEKEEPERS' CONFERENCES.

The State colleges and universities with departments of agriculture have commonly organized a short popular conference for farmers lasting a week, more or less, and with it an accompanying conference for farmers' wives, or the "farmers' wives' week," as it is often called. In other cases such a conference is organized independently

as the "housekeepers' conference," "school for housekeepers," or the "week's course in home economics."

For example, at the University of Texas a program of lectures, demonstrations, exhibits, and conferences is provided, including usually a series of consecutive lessons extending throughout the week and with various special features as well.

The school for housekeepers of the University of Illinois offers a two weeks' program dealing with various phases of home life.

It is planned not only for the activities of the home, but consideration is given to what may be called the higher life of the home. The health of the family, provision for beauty of surroundings, and wise administration are considered in home nursing, home decoration, household management, and care of the children.

The instructors include the members of the staff of the household science department, representatives of other university departments, and certain outside speakers. The program of the housekeepers' school, which is open without entrance requirements or fees, included in January, 1914, the following and other topics:

The house.—Home life of the children of the bush, Home life in Australia, The Illinois way of neighborhood planting, Good and bad architecture and why, Appreciation of pictures, Some suggestions for the home library, Care of the house, Good taste in furnishings, System of lighting for the farm home, Systems of water distribution in the farm home, and Why household-science clubs should be organized among housekeepers.

Food.—Food and its function in the body, Planting meals, Food for the sick, Care of milk in the home, Pure-food legislation, Table setting and service, Home canning, Rural school lunches and equipment, Vegetables, Food for the child, Infant feeding, Farm marketing, and Food demonstrations.

Clothing.—Some points in dressmaking, Good taste in dress, Choosing material for clothing, Home millinery.

Health.—Health in the home, Home care of the sick.

Immediately following the school for housekeepers, the University of Illinois offers extension courses in cooking and sewing which continue through four weeks and furnish opportunity for consecutive laboratory instruction in these fields, without entrance requirements, or fee, or university credit.

The Missouri Homemakers' Conference Association was formed in 1907 as an organization of women attending the farmers' week conferences held at the University of Missouri under the auspices of the State board of agriculture, which makes a grant toward speakers' expenses at this annual meeting. Its constitution states its object:

To unify the housekeepers of Missouri in an effort to better their own home conditions, to help future homemakers by encouraging the introduction and development of home economics in all the schools of the State, and to cooperate with other organizations working toward the same end.

Annual meetings are held during farmers' week, and the reports of the papers and addresses have been published by the State board.

of agriculture. The report for 1918, a pamphlet of 130 pages, which includes the following addresses and papers, will indicate the scope of the week's meetings:

The problem of the daughter; The feeding of children; The child and the law in Missouri; The boy in the family; Games and dances for children; Problem of the boy in the country; Babies' health contest (with exhibits of clothing, meals, toys, books); Girls' tomato canning club; Hot lunches in rural schools; Short course in home economics; Drafting patterns; Art and handwork in rural schools; School sanitation; Commercial gardening; A garden serving the home table a whole year; Fruit and flowers for profit; Poultry; Farm home management; Salt-raising bread; and Organization of homemakers' clubs.

The Missouri Homemakers' Conference has been influential in introducing tomato-canning clubs and in securing the appointment of a woman institute lecturer for the farmers' institutes held throughout the State under the State board of agriculture, who will organize county homemakers' conferences and local homemaking clubs. Some local clubs have indeed already been formed.

List of housekeepers' conferences.—The following table presents the facts as to these conferences, including also the shorter "schools," in some 29 colleges and universities. Several of them, it is noteworthy, are colleges on private foundations.

TABLE 4.—*Housekeepers' conferences, by colleges.*

Names of institutions.	Length of conference.	Attendance.
Colorado State College, Fort Collins.	1 week.	
Florida State College for Women, Tallahassee.	2 weeks.	40 to 50
Lombard College, Galesburg, Ill.	2 days.	40
McKendree College, Lebanon, Ill.	1 week.	43
University of Illinois, Urbana.	3 weeks.	250
Purdue University, Lafayette, Ind.	1 week.	60 to 100
Kansas State College, Manhattan.	6 days.	125
Kentucky University, Lexington.	1 week.	Small.
University of Maine, Orono.	4 days.	720
Massachusetts State College, Amherst.	5 days.	
Michigan Agricultural College, Lansing.	4 days.	600
Albert Lea College, Albert Lea, Minn.	1 week.	32
University of Missouri, Columbia.	5 days.	200
Montana State College, Missoula.	10 days.	78
University of Nebraska, Lincoln.	2 days.	200
New Mexico College of Agriculture, State College.	1 week.	20
Alfred University, Alfred, N. Y.	3 days.	150
St. Lawrence University, Canton, N. Y.	1 week.	
Cornell University, Ithaca, N. Y.	5 days.	1,200
North Dakota Agricultural College, Agriculture College.	3 days.	125
Muskingum College, New Concord, Ohio.	5 days.	700
Ohio University, Columbus.	1 week.	40
Oklahoma State College, Stillwater.	1 week.	240
Oregon State College, Corvallis.	1 week.	75
Pennsylvania State College, State College.	1 week.	200
University of Texas, Austin.	1 week.	1,000
University of Tennessee, Knoxville.	2 days.	200
University of Vermont, Burlington.	2 days.	150
University of Wisconsin, Madison.	2 weeks.	640

SHORT-TERM SCHOOLS OF HOUSEKEEPING.

Another type of popular home-economics teaching for nonmatriculated students is the "short course," or the "short winter course" as it is sometimes called, in agricultural colleges because of its relation to courses offered at that season when farmers may read.

ily attend. It is distinguished from the "housekeepers' conference," "housewives' week," and "week course," in that the time of instruction is longer and the emphasis is upon consecutive lessons in laboratory and classroom in a regular curriculum so arranged as to require full-time study from those attending through a definite period of time. It is thus a complete school meeting at the college, though for a limited period. Its methods are study and instruction, rather than address and inspiration as in the shorter conference. In 23 colleges the length of the short school varies from 2 to 32 weeks, and the median length of the course is 12 weeks. Several institutions offer instruction extending more than one season, and students are urged to return. This plan deserves emphasis; it offers a motive to continued study; it increases the worth of some of the work, e. g., in principles of nutrition, where 12 weeks of study provide only a beginning.

The aim of the short course at the *University of Missouri*, instituted in 1912, and seven weeks in length, has been stated by Miss Stanley, director of the department of home economics, to be that of—

Supplying a type of training similar to that furnished young men in the short course in agriculture. With this end in view, we have selected from our regular course those subjects which bear most directly on home life and have adapted them to the needs of the short-course student. These have been supplemented by courses in agriculture in which the women might be interested, such as dairying, poultry raising, and home gardening.

Kansas State College opens a two-term housekeepers' course to provide special training in home making. Young women between 18 and 21 are admitted upon presentation of the common-school or high-school diploma, or upon passing examination in the usual school subjects. Young women over 21 are admitted without examination. The following subjects are included in the housekeepers' course: Cookery, 10 hours in first term and 12 hours in second term; sewing, 10 hours; dressmaking, 8 hours; color and design, 6 hours; home nursing, 2 hours; floriculture, 3 hours.

Cornell University, in its department of home economics, offers a curriculum of study for three months beginning in December, the "winter course." There are no entrance examinations; the course is open to persons 18 years of age. "There is no limit of age above 18, and the course has been attended both by young women and by some older women. Many of the latter, mature in experience, have brought much inspiration and help to the department." The required subjects in the winter course are:

Foods.—Food composition, food values, methods of selection, preparation, principles of nutrition, dietetics, care and feeding of children. Laboratory work is given for the application of principles and includes practice in the preparation of food and in serving.

Household sanitation.—Sanitary condition of the house and site; conditions promoting health; proper care of the sick; and the relation of bacteriology to the household.

Household management.—The family income; the cost of living; household accounts; problems of domestic service; methods of housekeeping; equipment; marketing.

Sewing and drafting.—Laboratory work, instruction in sewing, and in cutting and fitting garments.

Art in the home.—This course considers the development of more artistic home surroundings; the building, site, garden; the furnishing and decoration of the house; the selection of books and pictures.

Persons registered in the winter course in home economics have opportunity to enter the courses in dairying, poultry husbandry, gardening, and extension work. As opportunity is offered, short-term technical courses of special interest to farm women will be added, such as canning and preserving, laundry management, dressmaking, millinery. It is hoped that, as these short technical courses are developed, many farm girls may find through them opportunity to engage in profitable enterprises without the necessity of leaving the farm. In short, the department hopes to aid in standardizing activities in which women are interested.

Twelve scholarships for the winter-course students are provided by the New York State Grange, each \$50 in cash, to be awarded to men and women who obtain the highest standard on competitive examination.

List of short courses.—A list of the institutions giving short-term instruction, nearly all of them State colleges and universities, is contained in Table 5. The list would be lengthened if there were included institutions giving practical classes in household arts which are not, however, organized as a school curriculum.

TABLE 5.—College short-term schools of housekeeping.

Names of institutions.	Weeks in course.	Registration.
Colorado Agricultural College, Fort Collins.....	24
Florida State College for Women, Tallahassee.....	8	8
University of Idaho, Moscow.....	20	8
Lombard College, Galesburg, Ill.....	16	7
University of Illinois, Urbana.....	4
Purdue University, Lafayette, Ind.....	8	22
Iowa State College, Ames.....	2	63
Kansas State Agricultural College, Manhattan.....	24	170
University of Minnesota, Department of Agriculture, St. Paul.....	4
University of Missouri, Columbia.....	7	24
New Jersey State College, New Brunswick.....	12	19
Cornell University, Ithaca, N. Y.....	12	60
Salisbury College, Winston-Salem, N. C.....	12
North Dakota Agricultural College, Agricultural College.....	10	40
State Normal College of Ohio University, Athens.....	4	150
Oklahoma Agricultural College, Stillwater.....	20	8
Oregon Agricultural College, Pullman.....	4	80
Pennsylvania State College, State College.....	12	10
Temple University, Philadelphia, Pa.....	22	20
Lander College, Greenwood, S. C.....	10	8
South Dakota State College, Brookings.....	12	15
University of Vermont, Burlington.....	2	5
Washington State College, Pullman.....	6	15

HOME EDUCATION DEMONSTRATION TRAINS.

Twenty-seven colleges report the use of railroad cars in extension teaching; in 17 of these colleges the home-economics department participates in the use of these demonstration cars, and 4 of the remaining 10 have done so occasionally. The home-economics departments in the following institutions have regularly used railroad demonstration cars: Colorado Agricultural College, Florida State College for Women, University of Idaho, Earlham College (Earlham, Ind.), Iowa State College, State University of Kentucky, Michigan Agricultural College, University of Minnesota, Montana State College, State College of New Mexico, Cornell University, Agricultural College of North Dakota, Oklahoma Agricultural College, University of Tennessee, University of Texas, State College of Washington. The character of these traveling exhibits is indicated by that of the Colorado Agricultural College.

The Colorado Agricultural College in February, 1914, operated "the Colorado dairy, silo, and forage crop demonstration train" over the Santa Fe lines in Colorado in cooperation with the colonization department of that road, a train of six cars and coaches, two of which offered provision for home economics.

One vestibuled coach was reserved for lecture work, and cooking demonstrations on "Variety in the preparation of cured meats and dairy products" were given by an instructor from the department of home economics, assisted by a senior student. Preliminary to the cooking of cured meats a talk on "Practical methods for curing meats on the farm" was given by a member of the animal husbandry department.

One end-door baggage car was reserved for college exhibits, these exhibits representing the departments of home economics, animal husbandry, agronomy, and veterinary science. The space allowed for home-economics exhibits—45 feet—was in the main occupied by exhibit cases, each 48 inches long by 30 inches wide by 6 deep, and so mounted that the center of the case was on a level with the eye. The cases were stained brown, backed with brown arras cloth, and closed with glass doors, and gave an attractive setting, despite the dust and smoke.

The purpose of the exhibit, expressed in the sign making announcement of "Suggestions for home improvement," dealt in the main with improvement in house equipment, and the average Colorado ranch home was the standard in mind. There should have been included as primary essentials consideration of water supply, waste disposal, lighting and heating plants, and the ice plant; but the expense of models was prohibitive, and for these topics suggestions were confined to a bulletin-board announcement of descriptive literature on the subjects named.

In large part the exhibit took the form of models made to a scale. Each grouping of models and illustrative material was made as graphic as possible, and in the main self-explanatory, so that the exhibit case might with brief announcement tell its own story. Overcrowding was avoided. Placards placed over the cases made simple, yet, in some instances, striking announcement. These placards were uniform in size and style, showing a clear-cut, heavy-face gothic letter in black on white board.

Following is a brief statement of the detail of the exhibit given as to case content:

1. *Wall finishes and wall coverings*.—Models suggesting color harmony in walls, ceiling, and woodwork, arranged in sets suggesting combinations suitable for living room, bedroom, and kitchen; nine models.

2. *Floor finishes and floor coverings*.—Nine models.

3. *Ventilating devices and the metal weather strip*.—Four models. Placard gives three especially important fresh-air facts.

4. *You spend one-third of your life in bed. Have that bed right*.—Sets forth in miniature the parts that go to make a well-equipped bed.

5. *Desirable and possible equipment for cleaning*.—Included in this collection are three models showing desirable types of work aprons.

6. *Laundry hints*.—The most attractive of the articles included in this case is a miniature laundry board cover of desirable type.

7. *Miscellaneous worth-whiles*.—Uncommon yet excellent devices and conveniences for the kitchen work table.

8. *The housewife's tool chest*.—A placard within the case reads, "Keep these in the house. Let the old man buy his own." The uncouthness of expression has been criticized, yet the sign forcibly calls attention to a need, and the use of the sign will be continued.

The two remaining cases show house dresses for the housewife and garments for the small child that are at once attractive, easily constructed, and inexpensive.

A set of open shelves, fully equipped, has its contents brought to the attention by the placard—

THE PANTRY SHELF

AS IT OFTEN IS. AS IT MAY BE.

Models made to a scale show "The ventilated and rat-proof cellar," "A homemade ice box," the ironing board that "stands pat," and a hinged table.

The Housewife's Ten-Dollar Library occupies a bookshelf. Printed lists giving titles, authors, publishers, and cost are available for free distribution.

A bulletin board announces "Things worth knowing about," and in illustration are shown bulletins that are available for distribution.

Mail boxes bearing the placard, "Write for further information" are distributed throughout the train. The contents of these, together with later correspondence and verbal reports, indicate that the demonstration train is creating interest wherever it goes.

It should be added that the exhibit described above constituted a part of the larger one representing the college at the stock show in

Denver late in January. Similar displays, but on a smaller scale, found a welcome place at county fairs during August and September.

EXTENSION TEACHING—MOVABLE SCHOOLS OF HOUSEHOLD ARTS.

Twenty colleges report as one form of extension work "movable schools of household arts," i. e., instruction of a consecutive organized form, extending through a week or more, given by regular instructors of the college at various points distant from the institution. Such schools are usually planned by a local committee or permanent organization, which provides for a meeting place, collects the fees which are usually merely nominal or cover only expenses of materials, cancels for students, and makes other necessary local arrangements.

The schools are planned in a series, so that the one, two, or more instructors go from the completion of one school to the beginning of the next. Such movable schools have been organized by the following institutions: State Universities of Illinois, Kentucky, Minnesota, Nebraska, Ohio, Missouri, Wisconsin, and Texas (beginning 1914); Purdue University and Cornell University; the State Colleges of Colorado, Kansas, Florida, Massachusetts, New Mexico, Oklahoma, Oregon, Pennsylvania, and Washington; also by Lombard College, Galesburg, Ill. The United States Department of Agriculture has published two outlines of instruction for movable and correspondence schools. (Cereals, Experiment Station Bulletin, 200; Vegetable Foods, Experiment Station Bulletin, 245.) The following description of the movable schools of the University of Illinois illustrates their methods:

The University of Illinois, through its department of household science, maintains movable schools of domestic science by sending out instructors for a week at a time to various communities, to pass at the end of the week to a similar school in another town. Two types of schools are organized, those with one instructor, in which special attention is given to food work, and those with two instructors in which a wider program, including household management and clothing, as well as food, is provided.

The weekly program in the one-teacher school provides for five afternoon sessions each two hours in length. There is an introductory meeting devoted to "better living conditions," and this is followed on four successive days with the following topics: Food requirements of the body, with a demonstration of protein foods, milk, eggs, cheese; protein and fat in the diet, with a demonstration of meats, fats; carbohydrates in the diet, with demonstration of starchy vegetables and bread; and fruits and green vegetables.

The two-instructor school provides a girls' class as well as that for housekeepers; its sessions begin Monday afternoon, and then occur both morning and afternoon from Tuesday till Friday. The general sessions provide the following topics: Meaning of household science to the housekeeper; food problems; foods containing nitrogen; protein and fat in the diet; carbohydrates in the diet; water and mineral matter; demonstrations with eggs, cheese, meat,

starches, fruits, and green vegetables; lectures on the house and its appointments, bedrooms and living rooms, kitchen, and household conveniences, household sanitation, better living conditions, and the selection and care of clothing. The special classes for girls is given lessons in foods, including protein foods, milk, eggs, custard, junket, and creamed eggs, uses of tough and tender meat, starchy vegetables and breads, and preparation of fruits.

The movable school is arranged through some local organization which pays the traveling expenses of instructors, the hotel expense, and materials for class use, which last costs from \$10 to \$15 in cookery classes. The local organization is asked to provide equipment, including gas or gasoline stoves with oven, refrigerator, cupboard, tables, dishpans, teakettles, bread boards, plates, and dishes for serving, dishcloths and towels with rack, and blackboard. They also provide a hall, with water supply, a woman for dishwashing, and arrange with the local store for food materials.

COLLEGE EXTENSION LECTURE SERVICE.

Forty-nine colleges and universities report that members of their staffs lecture before farmers' institutes on topics concerned with the home, and 22 report that such services are regularly undertaken; 23 colleges report similar lectures given before the granges, farmers' unions, and other voluntary rural organizations; while 58 report addresses on household subjects before women's clubs. The movable schools referred to above (p. 91), which provide continuous instruction by a college teacher in various communities are, of course, another type of extension lecture work. The extension lectures of the Massachusetts Agricultural College, Amherst, are a good example of lecture activity.

This college offers to arrange for individual lectures or series of lectures on various subjects at points throughout the State. These lectures are available "to all kinds of agricultural organizations, granges, farmers' clubs, boards of trade, women's clubs, Young Men's Christian Associations, church clubs, schools, and others which are interested in problems pertaining to agriculture and country life." Miss Laura Comstock, extension professor of home economics, gives on this basis the following lectures on home economics: Friends of the household; Labor-saving devices; Pests of the household; Some essentials of right living; The art of jelly-making; The value of budget making and account keeping to the housekeeper; Value of home economics in rural schools; What our food contains; Women's work in the community; Furnishing of the house; Sanitation in the home; The relation of right nutrition to general welfare; The human body and health. In economics and sociology lectures are offered on "The problems of the modern family," and "Eugenics of marriage, or mating for race improvement." Among the "lectures with a lantern" sent out in typewritten form with accompanying lantern slides is one on "Home and school-ground decoration."

POPULAR BULLETINS FOR THE HOMEMAKER.

Twelve colleges report the regular publication of popular bulletins on the household for the benefit of the homemaker; and in several other colleges there are plans for such publications or there have been occasional publications of this character. The colleges publishing such bulletins are: Colorado Agricultural College (Fort Collins), University of Illinois (Urbana), Purdue University (La Fayette, Ind.), University of Idaho, (Moscow), Iowa State College (Ames), University of Maine (Orono), University of Minnesota (St. Paul), University of Missouri (Columbia), Cornell University (Ithaca, N. Y.), School of Practical Arts of Teachers College (New York City), Agricultural College of North Dakota (Agricultural College), Ohio University (Columbus), Oklahoma Agricultural College (Stillwater), Oregon Agricultural College (Corvallis), and University of Texas (Austin). Other institutions have plans for such publications. A list of these publications is given in the bibliography (Part IV of this report, Bulletin, 1914, No. 39).

The influence of such a system of popular bulletins on homemaking topics may be inferred from the fact that editions of 30,000 to 50,000 have been circulated by the State College of Oklahoma, the University of Minnesota, and Cornell University, and that the Cornell reading course for the farm home now includes about 30 titles on food, clothing, housing and housework in its various divisions, and even the cultural and personal life as expressed in such subjects as "reading in the home" and "the Christmas festival."

One restriction on the usefulness of the bulletins published by State institutions has been that, as State documents, they are generally limited in circulation to the State issuing them. A successful bulletin is soon known and desired outside the State of issue, and this limit on its usefulness is unfortunate. On the other hand, State competition has probably assisted in developing these admirable series of bulletins, and doubtless a method of permitting reprints in other States will be possible. There is already obvious need of a national clearing house for this sort of household bulletin, just as the Office of Experiment Stations in the United States Department of Agriculture serves for the publications of the State agricultural experiment stations.

Another type of college publication is the periodical-announcement bulletin sent out by many of the State institutions, such as the College Courier, of the New Mexico College of Agriculture, and the Announcer, of the New York College of Agriculture. These papers are sent free to residents of the State and are of considerable help in the efforts to extend home-economics teaching, by securing its introduction into public schools, by advancing extension teaching, and by creating interest in resident study at the colleges.

The Home Training Bulletins, by Prof. McKeever, of the University of Kansas, illustrate the possibilities for wide distribution of information in leaflet form via extension agencies. These bulletins cover a number of practical topics in a practical way—the cigarette-smoking boy; the money relations of young people; choice of a vocation; training the girl to help in the home; and other matters which should be the subject of home training.

Banks have purchased Prof. McKeever's bulletins on Thrift, to educate their depositors; and social-betterment organizations and schools have aided in a widespread circulation of other of the bulletins. The bulletins are intended especially to guide parents in the training of children; they form valuable material for women's clubs and similar organizations. (See bibliography, Part IV, of this report, Bulletin, 1914, No. 39.)

CORRESPONDENCE INSTRUCTION BY COLLEGES.

Eleven institutions—Cornell University, Chicago University, Kansas Agricultural College, University of Maine, Oregon Agricultural College, University of Washington, University of Missouri, Pennsylvania State College, University of Texas, University of Wisconsin, College of Hawaii—report correspondence instruction in home economics. Such correspondence instruction is to be distinguished in method from the mere issuing of bulletins by the provision, in addition to the printed page or lesson, of an opportunity or requirement that the reader submit written lessons to the college for criticism, suggestions, and further directions as to study or practical procedure. Within such a form of teaching it is possible naturally to do work of varying educational value. In some cases, the lesson papers which accompany the bulletins set simple questions for the reader to answer, and endeavor to draw out her experience, asking that comments, questions, and problems be sent in to the college. Thus the New York State College of Agriculture at Cornell University has 22,000 persons in its housewives' reading course to whom the study bulletins with their accompanying schedules of questions are sent, though naturally personal correspondence is entered upon by only a fraction of them.

Soon after the Cornell reading course for farmers' wives had been established requests came to the college for the organization of local clubs, which might follow the reading-course lessons. The department of home economics prepared a study-club bulletin, giving typical programs, a constitution, and suggestions for organization. According to the plan, neighborhood clubs are organized, sometimes of women alone, sometimes with men also as members. Domestic subjects are considered, a social hour is part of the program, and

refreshments are often served. In some instances the clubs have become neighborhood improvement organizations, providing plans for various improvements. The club at Ballston Spa, N. Y., raised money for the building of a hall, which has become the community center. Over 60 clubs have been organized in various parts of the State.

The University of Texas reports six persons taking correspondence credit courses in home economics and announces the beginning of a series of popular bulletins for the housewife.

The University of Chicago offers in its correspondence study department opportunity to persons not in residence at the university to pursue a number of courses related to the home, and thereby receive university credit toward degrees. This department is expected to aid teachers, persons who wish to do part of their college study in nonresidence (the rules of the university permit candidates for the bachelor's degree to take one-half their courses while not in residence), and "parents uncertain how to deal wisely with their children." First aid to homemakers in various other fields is also afforded, and a registration of 90 correspondence students in household administration is reported by the university. The unit of study is the major course, the equivalent of 60 recitation periods in residence; fees are set at \$16 per major course, and \$8 for each minor course (one-half a major course). Three major courses in the department of household administration, including house sanitation, food and dietaries, and administration of the house, are given in correspondence by Prof. Talbot; and major courses in the school of education of the university are given as follows: Design, decoration and furnishing of the house, application of heat to food materials (two major courses), the chemistry of foods, and the teaching of home economics. For the latter course, a prerequisite is set of one year of technical training in home economics.

COLLEGE AS A BUREAU OF HOUSEHOLD INFORMATION.

Nineteen colleges report that their home-economics department serves in effect as a bureau of information for answering inquiries of housekeepers, and the department in every State college or university, it may be assumed, performs something of this service. It has developed naturally enough through the relation of such an institution to its constituency.

The housewife is now beginning to benefit from this relationship which has been already developed to such an extent in agricultural teaching. This "Wisconsin idea" and the "Amherst movement" (so named from the Massachusetts Agricultural College, at Amherst, Mass.)—the plan to make the State institution a consulting center

for exact knowledge—is beginning therefore to be applied as regards matters of home concern. In time this consulting service will be organized in local bureaus of household information in towns and cities, and rural districts, all related to a central office at the State college or university, thus making available for each home manager on call or by correspondence or telephone, reliable information upon her vital problems. The Indiana law providing for county agricultural agents, charged with responsibility for the improvement of domestic-science teaching, girls' club work, etc., to act under the direction of State College of Agriculture at Purdue University, is a noteworthy step. The provision of expert women agents to act with the agricultural agent¹ would be the next logical step, and this has already been proposed.

MISCELLANEOUS HOME-ECONOMICS EXTENSION WORK OF COLLEGES.

The college home-economics departments have, especially in the State colleges and universities, endeavored to serve a wider public by affiliated enterprises of a social-service character intended to forward a better home making. The list of these undertakings is suggestive: Tomato and canning clubs, which particularly in the South have had aid from the colleges, and in certain States leadership from the director of home economics in the State college; the boys' and girls' clubs under the direction of the State colleges of New Mexico and Oklahoma; the girls' home-economics clubs of Kansas; girls' contest clubs of Idaho; and the rural progress clubs of New York State—all under the direction of State colleges and universities. Exhibits at State and local fairs have been undertaken by institutions like Cornell and the University of Texas. Institutions located in cities have utilized as a practice field for intending teachers the home-betterment work in settlements, as Lewis Institute, Chicago, and Teachers College, New York. Several colleges provide special classes of a practical nature for nonmatriculated students from the local community, largely home women who wish to study home economics for home use, as notably at Teachers College (New York) and Simmons College (Boston); others offer special classes for teachers, as at Simmons College, and probably nearly or quite all send speakers to teachers' institutes and educational rallies. In the agricultural colleges much attention is naturally paid to rural school problems; so practice teaching and demonstrations are given in rural schools (Cornell, University of Missouri, West Virginia University, New Mexico Agricultural College). One State college, that of Rhode Island, has given extension courses in a near-by university, Brown, at Providence; and the University of Tennessee has furnished a published course of study, and instructors in domestic science for

¹ See Part II of this report, Bulletin, 1914, No. 87, p. 159.

the summer teachers' institutes under the State superintendent of public instruction. Colleges on private foundation recognize the obligation, or opportunity at least, in extension education for home betterment; so Milwaukee-Downer College holds demonstrations and exhibitions in home economics; and many other institutions give public lectures or provide housekeepers' conferences. The colleges have naturally aided in the introduction of household arts into the public schools; the home-economics department of one State university at least recognizing this propaganda as one of its important purposes, while others, as the University of Illinois and Louisiana State University, cooperate in the supervision of household science in the schools, the former in the high schools of the State and the latter in the public elementary schools, through an "inspector of household science" and "supervisor of home economics," respectively.

The Kansas State Agricultural College has developed a well-rounded system of extension education in home economics which may be cited as an example. It includes women's auxiliary associations connected with the farmers' institutes, extension service to the women's clubs of the State in the field of home economics, movable schools in cooking and sewing, home-economics clubs for girls and young men, in addition to short courses and other work given at the college for those who are not matriculating for the degree.

The women's auxiliaries of the farmers' institutes hold monthly meetings, with programs sent out from the college. They are attempting to bring the women of the country together to consider home problems and other matters of interest to them. Suggestive programs are sent out from the college for the meetings of the women's auxiliaries. A typical program is that on house cleaning, with the following topics:

Roll call. Little helpful hints on house cleaning.

Papers: The care and cleaning of walls; The proper treatment of floors; Ways of renovating furniture; The importance of the cellar in the house.

Discussion: The best way to clean the house.

Some house-cleaning problems.

1. Some modern helps.
2. Advantages of one room at a time.
3. Feeding the family during the house cleaning.
4. Rugs or carpets—which?

The extension department has drawn up a very comprehensive program of meetings for women's clubs, providing suggestions of papers, discussions, round tables, etc., on each of the following topics:

Reading matter in the home; Industrial training for the young; Modern graded school system; Phases of womanhood; The home nurse; Household conveniences; Beauty in home; Modern high schools; Science in the household;

Canning and preserving; Neighborhood improvement; The aesthetic influence of our country upon our homes; Household accounts; Vegetables; Women, the spenders; The relation of women to civic affairs; Food and food values; Bread; The modern home; Fruit; Children and their well-being; The kitchen as a workshop; Meat and other protein foods; Textiles and clothing.

The movable schools in cooking and sewing are organized in any community where at least 24 persons not under 15 years of age form a group and request the organization of a class. Each school begins Monday afternoon at 1.30 and closes Saturday at noon, with regular morning and afternoon sessions, providing five lessons in cooking and five lessons in sewing. At 4 o'clock each afternoon there is an open conference, to which all women are invited, and one public evening meeting is arranged if the local committee desires. A daily demonstration will also be given at the high school if desired. Each member of the movable school pays in advance a fee of \$1 and agrees to the assessment of 50 cents for supplies. The only additional expense to the community is the entertainment of the two teachers for the week and a nominal fee of \$5 to meet in part their traveling expenses. Movable schools are also conducted in agricultural subjects. Printed lessons are furnished for the movable school.

The college also furnishes correspondence courses in cooking and sewing for those who desire such instruction. A nominal fee, less than the actual cost of examining papers, is charged.

Cornell University well illustrates the possibilities of service by a State institution in extending education for the home; for the year ending October, 1912, the home economics department sent members of its staff to 163 meetings away from the college, where they delivered 287 addresses; 25 demonstrations were given; 1,987 letters connected with extension services were written; there were 20,000 enrolled in the Cornell reading course for the farm home; and 66 local Cornell study clubs were working in neighborhood groups with the lessons sent out from Cornell.

Section 6. UNIVERSITY GRADUATE STUDY IN HOME ECONOMICS.

It is now possible to take the degree of master of arts in 20 American colleges and universities by special graduate study in departments of household science and home economics; and in at least one university, Chicago, it is possible to become a candidate for the degree of doctor of philosophy in a department of household administration. It is thus fair to say that graduate study upon the first level, that of the master's degree, is now pretty generally established or about to be established in American institutions. Registration on the second level, for the doctorate, on the part of those interested in home economics, may be undertaken in the science departments of many universities; an appreciable number of persons interested in

home economics have thus become candidates for the doctor's degree in these related fields. Another and significant measure of higher scholastic standards is the increasing number of college instructors in home-economics fields who hold the doctor's degree. The situation as to study for the master's degree and the doctor's degree will be stated in turn.

The master's degree in home economics: Twenty colleges and universities, stated, in response to an inquiry, that they provide, or are prepared to provide, graduate instruction in home economics leading to the degree of master of arts or master of science. The list, with the degree offered, is as follows:

Chicago University, Chicago, Ill., A. M., M. S.; Cornell University, Ithaca, N. Y., A. M., M. S.; Florida State College, Tallahassee, Fla., M. S.; University of Illinois, Urbana, Ill., A. M., M. S.; Kansas State Agricultural College, Manhattan, Kans., M. S.; Michigan Agricultural College, Lansing, Mich., M. S.; University of Minnesota, St. Paul, Minn., M. S.; University of Missouri, Columbia, Mo., A. M.; Montana State College of Agriculture and Mechanic Arts, Bozeman, Mont., M. S.; University of North Dakota, Grand Forks, N. Dak., A. M., M. S.; Ohio State University, Columbus, Ohio, M. S.; Oregon Agricultural College, Corvallis, Oreg., M. S.; Pennsylvania State College, State College, Pa., M. S.; Purdue University, Lafayette, Ind., M. S.; Rhode Island State College, Kingston, R. I., M. S.; Simmons College, Boston, Mass., M. S.; Teachers College, Columbia University, New York, N. Y., A. M.; University of Vermont, Burlington, Vt., A. M.; University of Wisconsin, Madison, Wis., A. M., M. S.

The University of Washington, Seattle, Wash., plans to develop graduate work. Other institutions offer the master's degree for scientific study in fields related to the home, as in economics, chemistry, physiology, bacteriology, economics, and sociology, and thus have doubtless provided graduate opportunities for some persons interested in home economics.

Of these 20 institutions giving the master's degree, 9 are either independent State agricultural colleges or are agricultural divisions of State universities; 5 institutions offer both the master of arts and the master of science degrees; 11 offer the master of science degree; and 3 the master of arts degree alone.

The granting of 27 master's degrees is reported. Of these, 17 are granted by 3 institutions—3 by Chicago University, 10 by Teachers College in 1913, and 4 candidates are reported for the University of Minnesota for 1914. The other master's degrees reported (for 1913, unless otherwise stated) were as follows: Florida State College, 1; University of Illinois, 1; Kansas State College, 1 (1914); University of Missouri, 1; Ohio State University, 4 (to 1913); Purdue University, 1; University of Vermont, 1 in 1911.

A statement furnished as to the graduate courses offered for the master's degree by college departments of home economics showed

the following subjects: Household administration, house sanitation, legal and economic position of women, household chemistry, bacteriology, physiological chemistry, nutrition, laboratory methods in nutrition, investigation in nutrition, food supplies and dietaries, household administration, dietetics, experimental cookery, sanitary chemistry, household arts education, foods and cookery, institution management, humanics, and in addition courses described by the generic terms home economics, household economics, domestic science, and seminars.

In addition to these offerings of the master's degree in home economics, all colleges and universities offering graduate study provide in their science departments opportunities for students interested in home economics. Thus, Wellesley College offers a graduate chemistry course in "Problems of food analysis."

The degree of doctor of philosophy in home economics.—Chicago University in 1906 conferred a doctor's degree with registration in its department of household administration for a thesis on the digestibility of starch as affected by cooking.¹ This is the first instance of graduate study in home economics upon the second level, that of the doctorate in an American university. Many universities, of course, provide opportunities for graduate work in the natural and social sciences upon problems which belong in the home economics field through registration in other departments, such as chemistry, physiological chemistry, biology, bacteriology, education, economics, and sociology. It is difficult to make a complete list of opportunities of this kind for advanced graduate study, but some of the institutions which seem particularly available at present are as follows:

University of California, Berkeley, Cal.: Among other departments, those of economics and physiological chemistry.

Yale University, New Haven, Conn.: Departments of physiology, physiological chemistry, and bacteriology and hygiene.²

Chicago University, Chicago, Ill.: Primary registration for the doctor's degree may be made in the department of household administration, or a minor may be taken in household administration and a major in another department; in such an arrangement the departments of chemistry, education, hygiene and bacteriology, political economy, and sociology are especially available.

University of Illinois, Urbana, Ill.: A minor for the doctor's degree may be taken in the department of household science; for the major, the departments of bacteriology, chemistry, physiological chemistry, economics, education, and sociology, among others, are available.

¹ See "Digestibility of starches of different sorts as affected by cooking," Edna D. Day, United States Department of Agriculture.

² It is interesting to note that doctorates have been conferred upon persons now serving as college teachers of home economics with thesis subjects as follows: "Nutrition investigations on carbohydrates of lichens, algae, and related substances"; "The proteolytic enzymes in certain plants"; "The occurrence of purine enzymes in the tissues of the invertebrates and lower vertebrates"; "Fat transportation and metabolism studies with the aid of soluble dye"; "Feeding experiments with mice."

University of Minnesota, St. Paul, Minn.: A major has been suggested in biological science and physiological chemistry under the medical school, with a minor in home economics, including nutrition and dietetics; graduate work is also available in sociology, economics, education, and other departments.

University of Missouri, Columbia, Mo.: The departments of bacteriology, chemistry, economics, education, physiology, and sociology provide special opportunities for graduate study for the doctorate.

University of Nebraska, Lincoln, Nebr.: Among others, the department of sociology.

Columbia University, New York, N. Y.: A major registration may be made in education, or food chemistry, or physiological chemistry, which are constituent departments in the household arts departments of Teachers College, and a minor may be taken in these departments or in household administration and economics; other university departments especially available for major or minor study are chemistry, economics, sociology, and social economics.

Cornell University, Ithaca, N. Y.: Departments of chemistry, physiological chemistry, bacteriology, and economics.

Bryn Mawr College, Bryn Mawr, Pa.: Departments of biology, chemistry, and economics.

University of Wisconsin, Madison, Wis.: A minor for the doctorate may be taken in home economics; the major in the departments of chemistry, physiological chemistry, including agricultural chemistry with nutritional investigations, bacteriology, economics, education, entomology, and sociology.

It seems certain that the next few years will see the development of advanced laboratory and field research courses in American universities for the training of college teachers and scientific workers in home economics. With over 250 colleges already teaching home economics and the standard favoring college teachers with the doctor's degree already making itself felt, such training must very evidently be provided. If the proposal to establish experimental work in home economics in the State agricultural experiment stations¹ is approved, this will afford another demand. Experts trained to original investigation in the subjects of food, clothing, shelter, and management have still wider fields in social, philanthropic, and municipal service, in institution management, Government bureaus, and even in industrial and commercial undertakings.

SECTION 7. INSTRUCTION RELATED TO THE HOME IN WOMEN'S COLLEGES.

Many of the colleges for women that have not yet established departments or even courses in "home economics," nevertheless do offer applied-science courses which find their application in the household. There are many instances also in these institutions of vocational courses in fields other than the household, and the inference seems justified that if a college for women finds it possible to give courses in preparation for teaching, or the musical profession, or for civic and philanthropic work, which a few graduates may fol-

¹ See Part II of this report, Bulletin, 1914, No. 87, pp. 179, 182.

low, by so much the more might it offer courses in applied chemistry, economics, or sociology, which have reference to the common experience of most men and women—life in the family group. Matthew Vassar evidently had this type of course in mind when in 1861 he included in his suggested course of study for the projected Vassar College:

Anatomy, physiology, and hygiene with practical reference to the laws of the health of the sex; * * * moral science, particularly as bearing on the filial, conjugal, and parental relations; * * * domestic economy, practically taught, so far as is possible, in order to prepare the graduates readily to become skillful housekeepers.

The catalogues of nine women's colleges were examined with regard to courses of vocational significance.

In one case, that of Bryn Mawr College, Bryn Mawr, Pa., a graduate professional school of education has been established. A professional school of household administration might with equal appropriateness be organized in connection with a woman's college, thus proceeding in the direction of a diversified professional education for women upon the collegiate level, just as the engineering and other professional schools for men have developed in the last 50 years about the original colleges for men.

Barnard College, Columbia University, New York City, offers in economics and social science applied courses on "women in industry," and "problems in public health and standards of living"; in physical education, a course in "hygiene, physiology, and public health problems"; and in zoology a course in "vital relations of the human organism"; and Barnard undergraduates are allowed to elect in Teachers College, Columbia University, certain of its courses in education, but not the courses in household arts in the collegiate school of practical arts of Teachers College, Columbia University. Graduates of Barnard College, however, may find in this school of practical arts a university school of household technology offering both undergraduate and graduate courses leading to household, institutional, and commercial vocations related to the home.

Goucher College, Baltimore, Md., offers two courses in the department of physiology and hygiene, with related physical training; a course in philanthropy in the department of economics and sociology; a course in the history and principles of education; and two courses in art criticism. The logic that makes a place for preparation for teaching and for social service demands parallel opportunities for training in woman's more common vocation, that of home-making.

Mt. Holyoke College, South Hadley, Mass., offers the following applied courses: In botany, "plant culture and landscape gardening"; in chemistry, "foods"; in economics and sociology, "charities

and corrections," "American cities"; in education, some 13 courses, in one of which observation work in the public schools is provided; in hygiene and physical training, a course in "hygiene and sanitation," including municipal sanitation with a consideration of food-stuffs, infectious diseases, etc.; in music, 11 courses in theory and 12 courses in practice, of which 8 hours of practical music may be credited toward a degree, provided theoretical work is taken in addition. The remarkable development of 23 courses in music and 13 in education suggests interesting possibilities when the home, as well as the school and technique and appreciation in music, is recognized in professional education.

Radcliffe College, Cambridge, Mass., with instruction identical with that in Harvard University, offers courses with vocational significance as follows: Three in public speaking; one in modern municipal government; in social ethics, five courses, in which the problems of poor relief, the family, temperance, and the labor question, the moral responsibilities of the modern state, social amelioration in Europe, and rural social development are treated; in education, two courses for undergraduates and four for graduate students; in fine arts one for undergraduates and four for graduates; in music, four courses for undergraduates and one for graduates. The offering of instruction related to the home in the department of social ethics indicates what might be done in the way of education for the home were well-considered applied science courses organized in the several departments of economics, sociology, chemistry, biology, etc.

Smith College, Northampton, Mass., offers the following applied courses: In education, six courses, in two of which there is opportunity for school visiting; in economics and sociology, courses in charities and corrections and in present social problems dealing with conditions affecting the welfare of the laboring class, with housing, immigration, and social insurance; in elocution, 11 courses; in music, 11 theoretical courses and 8 practical courses, credit in which is allowed within the minimum of hours, provided the practice work is sufficiently advanced, and is accomplished by theoretical work for one year. Not more than two hours of practical work each year may be counted within the minimum of hours; in art, four practical courses, which when combined with historical and theoretical courses are credited as in music; in chemistry lectures on the application of chemical facts to common life, also a course in sanitary chemistry with reference to public health, including analysis of air, water, and food, chemistry of microorganisms; in botany, courses in bacteriology and other phases of microbiology in relation to health and other public interests, and in horticulture, advanced horticulture

and landscape gardening (see p. 106); in physical training, 10 courses, which do not count in the record of hours.

The extensive offering in elocution, music, and art is doubtless based on the exclusively cultural view of women's education, but such instruction has a vocational significance; the work in education has, of course, the direct vocational end point—a parallel department of household administration in a women's college would seem to have equal justification, and would certainly have an equal, if not wider, practical bearing with the student body.

Vassar College, Poughkeepsie, N. Y., offers the following applied courses: In economics and sociology, a course on charities and corrections; in chemistry, courses in "physiological chemistry," with special reference to food materials, food analysis, quality of foods, and adulterants; and "application of chemistry to food and sanitation," which is intended to give "a basis for intelligent consideration of the chemical aspect of problems involved in public and private hygiene, especially valuable for those interested in sociology and wishing to equip themselves for public service." In physiology and hygiene, in addition to freshman lectures and a course in human physiology, there is a course in municipal and house sanitation, open to juniors and seniors, which "deals with the principles of modern sanitation, and comprises such subjects as water supply, sewage and garbage disposal, construction of habitations, and the hygiene of transmissible diseases." These beginnings in applied courses suggest the possibilities of instruction related to the home when the ideas of Matthew Vassar are fully carried out.

Wellesley College, Wellesley, Mass., offers the following applied courses: In chemistry, air, water, food analysis; in economics and sociology, a course in social economics presenting a study of dependent, defective, and delinquent classes, with visits to designated institutions; a second course in social economics, treating such normal social needs as housing, sanitation, education, and recreation, using the North End Settlement House of Boston for observation; and a course in "the economics of consumption," dealing with the theoretical and practical aspects of the use of wealth, in which "some or all of the following topics will be discussed: The division of public and private incomes between use as capital and use for immediate consumption (functions and limits of saving), 'Engel's Laws,' standards of living, workingmen's budgets and the minimum wage, Veblen's theory of conspicuous consumption, the rôle and social limits of luxury, final utility, and its relation to expenditure. The function of women in directing household expenditure will be considered throughout." In education, four courses are offered, with an opportunity in one for observation of high-school work, and a requirement of a systematic practice teaching in the high school; in elocu-

tion, three courses; in hygiene and physical education, 20 courses, prescribed for the two years' course, leading to the certificate of the department, which is especially designed for the training of teachers of hygiene and physical education; in music, theoretical courses and also practical music, including instrumental and vocal, with credits toward the A. B. degree restricted to applied harmony, history, and counterpoint, although a certificate of the department of music is given which requires practical work. The work at Wellesley College in education, physical education, and music, including practice work in each field, and the applied courses in chemistry and economics, some of which bear directly upon the household, again suggest the possibilities of a department of household administration.

The Women's College of Brown University, Providence, R. I., offers two technical courses in art, given at the Rhode Island School of Design, in addition to its own theoretical courses and four courses in education.

What these colleges have already done in the organized courses in education, including the graduate school of education at Bryn Mawr, affords the best example of what these women's colleges might do in the field of household administration. The foundation of well-equipped schools of household technology, affiliated with a women's college, as our schools of engineering, law, and medicine have grown up about the men's colleges, may be the ultimate type of organization in this field. Such a school of household administration adequately equipped and endowed is an undertaking comparable to a school of engineering for men, and is not to be undertaken lightly or without large financial resources. A feasible first procedure, however, in any college or university would be to offer applied courses in economics, sociology, chemistry, and ethics which together would make up a program of household administration study. Such courses open to college women in the junior or senior year, or grouped as a graduate year of study, would provide opportunity for vocational study, in addition to the cultural course of the college, in the principles underlying the processes of the household, and of related institutional and commercial enterprises, as school and commercial lunch rooms, diet kitchens, hospitals, orphanages, dormitories, and other institutional households.

That progress may come with regard to wider opportunities in education for the home in women's colleges is suggested by the report of a committee of the New York branch of the Association of Collegiate Alumnae in 1910, which recommends that the curriculum of women's colleges be modified in the direction of vocations by the introduction of required courses in hygiene, biology, and bacteriology, and applied sociology—legislation, property, social and domestic relations from the point of view of women's interests; and that further

elective courses in the physical and psychological hygiene of childhood and in political science be provided.¹

In this connection the following statement regarding applied-science courses in women's colleges, furnished by Prof. W. F. Ganong, of Smith College, is of interest:

It will be granted, no doubt, that the ideal courses for a college curriculum are those in which the method permits intellectual training, while the subject matter has important practical application. The science of botany offers some such courses, which have been tested well at Smith College. The most important is a course in horticulture and landscape gardening. In this the students do systematic laboratory work, under the supervision of a skilled gardener, in the principal gardening operations—the propagation of plants by seeds, cuttings, grafting, and other methods; the use of soils and fertilizers; watering, pruning, potting and forcing, crossing and hybridizing, etc. An essential feature of the work is the simultaneous study, under a specialist in plant physiology, of the scientific principles—chemical, physical, and physiological—underlying these operations.

The students try experiments to test the principles and connect them with the practical operations. This work occupies two terms of a year, and the third is given to the elements of landscape gardening. Here the students learn from observation of examples out of doors, supplemented by study of graded series of diagrams, photographs, etc., the ideas underlying the correct use of plants in combination with walks and drives, lawns and buildings, for the beautifying of home and public grounds. Along with this work, as likewise in the earlier part of the year, the students are learning, by the usual methods of identification, etc., to know the principal kinds of cultivated plants, both of indoors and outdoors.

The course throughout is carried on in the spirit and by the methods of the scientific laboratory, while its subject matter has obviously a perfectly direct bearing upon an important part of woman's work in the home and the community. It does not, naturally, make her either an expert gardener or a landscape architect, but it does show her what there is in those subjects, their standards, and the methods of their study; and it enables her to take an intelligent and helpful interest not only in the improvement of her own home but also in the development of school grounds and other civic improvements involving plants and landscape matters. Above all, it gives her a sound basis for continuing the study by herself if she wishes.

An advanced course in landscape gardening is given in the same spirit. It is not designed for professional purposes, but for further training in appreciation of landscape subjects for individual and civic benefit.

In precisely the same spirit, also, a course is given in bacteriology and allied phases of the biology of minute organisms, in relation to their bearing upon both personal and public hygiene, and economics. This course, likewise, offers the possibility of the most rigid scientific training in conjunction with the acquisition of knowledge having direct utility both to the individual and, through her, to the community in which she lives.

¹ Association of Collegiate Alumnae, Feb., 1910, p. 37.

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[NOTE.—With the exceptions indicated, the documents issued below will be sent free of charge upon application to the Commissioner of Education, Washington, D. C. Those marked with an asterisk (*) are no longer available for free distribution, but may be had of the Superintendent of Documents, Government Printing Office, Washington, D. C., upon payment of the price stated. Remittances should be made in coin, currency, or money order. Stamps are not accepted. Documents marked with a dagger (†) are out of print.

1906.

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- †No. 6. Statistics of State universities and other institutions of higher education partially supported by the State, 1909-10.

1911.

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1912.

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- No. 23. Special collections in libraries in the United States. W. Dawson Johnston and Isadore G. Mudge.
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- †No. 26. Bibliography of child study for the years 1910-11.
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- *No. 28. Cultivating school grounds in Wake County, N. C. Zebulon Judd. 5 cts.
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- No. 31. Educational directory, 1912.
- No. 32. Bibliography of exceptional children and their education. Arthur MacDonald.
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1913.

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